AFFIDAVIT OF NICOLS FOX

State of West Virginia

County of Greenbrier

Nicols Fox, being duly sworn deposes and says:

1. My name is Nicols Fox. I live at Windy Knoll, Brownstown Road, Renick, WV (Mailing address: HC 66, Box 461A, Renick, WV 24966)

2. I am a journalist of 28-years standing. For more than a decade I was a regular correspondent for The Economist magazine. My articles and essays have appeared in numerous US and international publications including The Washington Post and The New York Times. I am the author of four books, two of them on medical topics.

3. This affidavit is being composed on a manual typewriter because I can no longer use a computer. Nor can I be exposed to any electrical device. Exposure to radio-frequency radiation, especially wireless (wifi) or cell phone frequencies, produces documented and repeatable physiological effects that have had a serious detrimental impact on my health, my career and my life.

4. I have lived at my present address for only 10 months. Previously I lived on Mt. Desert Island, Maine, widely known as being one of the most beautiful places in America. I was forced to sell my business and my home, leave friends and a community that, over twenty-two years, I had grown to love, not just because of my growing electrical hypersensitivity, but because the progressive installation of wifi and the plan to turn the entire island into one wifi or "hot spot" zone presented a serious threat to, not simple my wellbeing, but to my life.

5. At great expensive and personal sacrifice, I had to move to an extremely rural area where cell phone reception is weak and for the moment there is no wireless. I have bought land and am building a small, off-the-grid house.

6. I am not looking forward to the struggle of using wood heat and oil lamps at my age and in poor health. But most of all, I fear that the proposed implementation of universal wireless broadband will threaten what little comfort and safety I have managed to achieve.

7. Since wireless broadcasts are no respector of property rights; since I can not live in a house or on property that receives a wireless signal, I believe such broadcasts amount, under law, to a "taking."

8. My sensitivity began with exposure to an industrial-strength uninterruptable power supply (UPS) device that, over time, produced a sunburn-like effect on the right side of my body that first went away overnight, then only over the weekends, and then, not at all.

EXHIBIT 10

8. This continuous sunburn-like effect got my attention. I contacted an expert to find out what was going on. With his help I discovered that it was not my computer causing the problem (which I had suspected) but the UPS device. I unplugged it at once.

9. I was directed to the Swedish Association for the Electrosensitive (feb.se) where I learned about the condition. This site advised me to get off the computer.

10. I did not take that advice for two reasons: I earned my living at the computer, and the information from government sources was reassuring. The fields I was being exposed to were well below levels said to have any effect on the human body. While it was easy enough to find a few studies indicating that electric fields caused cellular changes, these were generally ignored or discredited in surveys conducted by governmental or non-governmental organizations. I put them out of my mind and continued to work.

11. One aspect of my condition was worrying, however. Could something with only a psychological cause produce a sunburn on only one side of my body? Nevertheless, with government standards to reassure me, I kept working.

12. My condition worsened. The sunburn vanished with the removal of the UPS device, but other symptoms appeared. First tingling and an unpleasant fizzy sensation. Then shooting pains. More severe pain in the hand that rested on the mouse. Burning on my face that caused me, almost unconsciously, to cover my face as well as I could with one hand or the other as I tried to work. Finally the pain in my hands, arms and shoulders became so severe that I would scream. Only then would I stop working.

13. I bought a new computer with an LCD screen. It helped only slightly. I bought a protective glove. Clumsy. I wore a protective scarf over my head. Little help. I changed careers. I opened an antiquarian bookstore. I made sure the shop had low EMF, at great expense. Soon everything about the antiquarian book business was on computers.

14. And then came wifi. At first I didn't know what was causing me such pain and fatigue. I didn't have a cash register--only a cash drawer. I had reduced my exposure to EMF to the greatest extent possible, and I was only getting worse.

15. Then my computer guy told me that my shop was picking up signals from the library and numerous other sources. Suddenly it made sense. I was no longer comfortable in the library, or in the grocery store next to it. Wifi was the problem. Out of it, I was fine

16. I clung on for another year, becoming increasingly uncomfortable. Finally, I capitulated. I closed the shop and put my house on the market. As exposed as my house was to wifi, I couldn't even live there the last 10 months. I stayed at a friend's house.

17. By that time, I was discovering that wifi wasn't as benign as I was being told. I found there were many studies connecting radio-frequency radiation to adverse health effects. (Attachment 1)

18. I mentioned previously that two of my books were on medical topics, specifically, foodborne disease. While I am not a scientist, merely a journalist, I respect science and its methods. From the first triggering exposure even as my symptoms progressed, I was the skeptic. How could I be sure I wasn't inventing this in my mind? I was hard to convince.

19. The first real evidence was that I sometimes felt pain when I could discover no electric source; no source for emf. Then I got a gauss meter and found the problem: high fields in those areas produced by hidden sources that could be identified if I looked for them. (In one spot the circuit breaker was on the other side of the wall.)

20. My "denial" was made worse by my natural optimism. I wanted the symptoms to go away; I felt sure they eventually would. They did not. They worsened.

21. For some reason I also failed to make obvious connections. I suffered great pain while watching television and blamed it on the chair. Then, one night I cut off the TV and continued to sit there reading and noticed that the pain had vanished. Then, I cut it on and the pain came back. I could cut the pain off and on with the RCD.

22. Some sensitive people are always wary. On the contrary, I am usually hopeful that I will not experience symptoms. Therefore, they catch me by surprise--not when I have used a meter to detect sources, which I believe could produce what one was looking for, but using a meter to confirm a source only after I have experienced severe symptoms.

23. Still, that is not science. Science requires double-blind studies. My doctor and I conducted one unwittingly. I had been to her house (she became a friend) several times with no discomfort. Then, I became uncomfortable after only a few minutes on a subsequent visit. I tried to say nothing and endure the pain. Eventually, I had to tell her that I had to leave. Outside, we discussed what might be the possible source. Neighbors with wifi? we speculated. I left. I was home only a minute when she called to apologize. Her son had been home over the weekend and had turned on the wifi. We both became believers.

24. A nearby town put in wireless. I was driving through showing a visiting friend the winter sights. Suddenly I was hit with such intense pain that I screamed, doubled over and stopped the car. She had to drive. Twice more I was hit with pain as I went through town. These proved to be wifi booster spots. I am afraid now to drive in areas I don't know well.

25. Am I the only one? It seems from a California study that there are millions of us. In 1998 the California Dept. of Health found 3.2 % of the population identified themselves as electrically hypersensitive. Clearly, we can't all be mad.

26. My health is now ruined. My pain has increased over the years from an unpleasant tingling to shooting nerve pains, to the present when proximity to something as innocuous, seemingly, as a turned-off, plugged-in lamp can cause severe muscle and joint pain in the nearest body part. I can use no electrical devices. I am able to talk for only a short period of time on an old land line before I experience discomfort, pain in my ear, and my voice becomes hoarse and rough, apparently due to some damage to my vocal chords from emf. I cannot watch TV or listen to the radio. Driving even an old car with fewer electronic gadgets is painful and exhausting. I have acute gastric reflux disease. I am exhausted much of the time and have an almost constant headache, as at the moment I can only lower my exposure rather than avoid it completely. I don't sleep well.

27. My world, already circumscribed, becomes smaller everyday. A restaurant, off the beaten path, with low incondescent lighting, no music system and no ceiling fans, will suddenly decide to install wifi and one more possibility for normal life vanishes.

28. Sometimes there is good news. While most libraries refuse to cut off their wifi, one has relented. If no one is using it they will cut it off for me while I look for a book--if no one comes in who wants it. This library situation is very hard for me as a writer and researcher. I'm afraid I get emotional just writing about it.

29. Visits to the doctor leave me exhausted and in pain. We are putting off medically indicated tests unless absolutely necessary because of the physical toll they take on my health. On a visit to the emergency room I turned off the lights, pulled plugs on all equipment, and still was in agony as my badly infected hand was treated. I went home exhausted, in pain, and ill.

30. When I think about the future I realize that retirement communities and nursing homes are out of the question. Nor can I visit my family, as they live in urban areas with universal--or nearly universal--wifi.

31. I have no social life to speak of. My career is ruined. I am too exhausted and sick to do any work on a regular basis. I am rapidly running out of money and because I took social security early when my poor health caused my income to fall I will not have enough to live on, neither can I file for disability since I am now of retirement age. I have no idea how I will survive.

32. In addition to those problems I do not know when the land I have bought will be "invaded" by cell towers or wireless. One day I might be safe; the next I might be sick. The future looks as grim and as frightening as any I could imagine. I am a refugee running from an invisible enemy that could attack at any moment.

33. I have only recently discovered that it has long been known in scientific circles that there are, indeed, biological effects not only from ELF fields but from low level, non-thermal, radio-frequency fields. (Attachment 2).

34. Russian studies (attachment 3) translated by the US Govt. in the 1970s addressed the adverse effects of exposure to non-thermal radio-frequency radiation. Several were excluded from the 1984 survey of Biological Effects of Radiofrequency Radiation conducted by the EPA and used to set exposure standards for the public. The criteria used for the study (attachment 4) appear designed, in fact, to exclude, rather than include relevant studies. Thus, the standards need to be readdressed using any and all studies that might call attention to potential health problems associated with exposure previously considered safe.

35. One excluded study describes the symptoms I have experienced almost precisely. (attachment 5) I experienced similar low heart bpm.

36. Wearing a Holter monitor for 24 hours demonstrated the irregularities (22,600 in 24 hours) I experienced during a period when I was exposed to wifi almost continuously. (attachment 6) My heart is rarely irregular now that I am living in a rural setting where I am seldom exposed, but in one exposure my heart dropped to 38 BPM, a rate measured by my neighbor.

38. With the understanding that the EMR Policy Institute is preparing comment to submit in the current FCC proceeding to develop policy for providing high-speed internet service throughout the country (FCC 09-31, A National Broadband Plan for Our Future) I hereby designate the Institute to speak on my behalf, defending my right to be safe in my own home and on my own property, but also in all public settings of whatever kind and in private settings that are open to the public. I should not have to face pain, discomfort, and health effects that could be life threatening while doing ordinary activities because FCC's current exposure guidlines are inadequate in light of the findings of current science. Their adaquacy in protecting all citizens from what would be continuous exposure is called into question, in fact, by the EPA. (Attachment 7)

39. My signature below confirms my approval of EMR Policy Institute's representation of me and I further ask that FCC accept this affidavit and the attached exhibits into evidence for consideration under FCC 09-31, A National Broadband Plan for Our Future as it is material evidence of the harm that is the result of signals to which I have been subjected for which the present standards are inadequate and not based on science both old and current that should be considered in setting standards that truly protect the public.

Nicols Fox

NICOLS FOX

Subscribed and sworn to and
before a Notary Public, in
and for the County and State
aforesaid this 3rd day of June, 2009

Carman H. Phillips

Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
CARMAN H. PHILLIPS
First National Bank
P. O. Box 457
Ronceverte, WV 24970
My Commission Expires April 2, 2016

ATTACHMENT 1

Appendix 2

STUDIES SHOWING ADVERSE BIOLOGICAL EFFECTS OF RADIO FREQUENCY RADIATION AT LOW INTENSITIES.

Compiled by Dr. Henry Lai, University of Washington.

Source of literature and abstracts (Table 2):

(1) Balode, Z, Assessment of radio-frequency electromagnetic radiation by the micronucleus test in bovine peripheral erythrocytes. *Sci Total Environ* 180(1):81-85, 1996.

Previous bioindicative studies in the Skrunda Radio Location Station area have focused on the somatic influence of electromagnetic radiation on plants, but it is also important to study genetic effects. We have chosen cows as test animals for cytogenetical evaluation because they live in the same general exposure area as humans, are confined to specific locations and are chronically exposed to radiation. Blood samples were obtained from female Latvian Brown cows from a farm close to and in front of the Skrunda Radar and from cows in a control area. A simplified alternative to the Schiff method of DNA staining for identification of micronuclei in peripheral erythrocytes was applied. Microscopically, micronuclei in peripheral blood erythrocytes were round in shape and exhibited a strong red colour. They are easily detectable as the only coloured bodies in the uncoloured erythrocytes. From each individual animal 2000 erythrocytes were examined at a magnification of x 1000 for the presence of micronuclei. The counting of micronuclei in peripheral erythrocytes gave low average incidences, 0.6 per 1000 in the exposed group and 0.1 per 1000 in the control, but statistically significant ($P < 0.01$) differences were found in the frequency distribution between the control and exposed groups.

(2) Boscol P, Di Sciascio MB, D'Ostilio S, Del Signore A, Reale M, Conti P, Bavazzano P, Paganelli R, Di Gioacchino M. Effects of electromagnetic fields produced by radiotelevision broadcasting stations on the immune system of women. *Sci Total Environ* 273(1-3):1-10, 2001.

The object of this study was to investigate the immune system of 19 women with a mean age of 35 years, for at least 2 years (mean = 13 years) exposed to electromagnetic fields (ELMFs) induced by radiotelevision broadcasting stations in their residential area. In September 1999, the ELMFs (with range 500 KHz-3 GHz) in the balconies of the homes of the women were (mean +/- S.D.) 4.3 +/- 1.4 V/m. Forty-seven women of similar age, smoking habits and atopy composed the control group, with a nearby resident ELMF exposure of < 1.8 V/m. Blood lead and urinary trans-trans muconic acid (a metabolite of benzene), markers of exposure to urban traffic, were higher in the control women. The ELMF exposed group showed a statistically significant reduction of blood NK CD16+-CD56+, cytotoxic CD3(-)-CD8+, B and NK activated CD3(-)-HLA-DR+ and CD3(-)-CD25+ lymphocytes. 'In vitro' production of IL-2 and interferon-gamma (INF-gamma) by peripheral blood mononuclear cells (PBMC) of the ELMF exposed group, incubated either with or without phytohaemoagglutinin (PHA), was significantly lower; the 'in vitro' production of IL-2 was significantly correlated with blood CD16+-CD56+ lymphocytes. The stimulation index (S.I.) of blastogenesis (ratio between cell proliferation with and without PHA) of PBMC of ELMF exposed women was lower than that of the control subjects. The S.I. of blastogenesis of the ELMF exposed group (but not blood NK lymphocytes and the 'in vitro' production of IL-2 and INF-gamma by PBMC) was significantly correlated with the ELMF levels. Blood lead and urinary trans-trans muconic acid were barely correlated with immune parameters: the urinary metabolite of benzene of the control group was only correlated with CD16+-CD56+ cells indicating a slight effect of traffic on the immune system. In conclusion, this study demonstrates that high frequency ELMFs reduce cytotoxic activity in the peripheral blood of women without a dose-response effect.

(3) Chiang H, Yao GD, Fang QS, Wang KQ, Lu DZ, Zhou YK, Health effects of environmental electromagnetic fields. *J. Bioelectricity* 8:127-131, 1989.

We investigated the effects of exposure to environmental electromagnetic fields (EMFs) in 1170 subjects. Neutrophil phagocytosis was enhanced in the low-intensity exposure groups, but reduced significantly at relatively higher intensities. Visual reaction time was prolonged and the scores of short-term memory tests were lower in some high-intensity exposure groups. EMFs may affect the central nervous and immune systems in man.

(7) Dolk H, Shaddick G, Walls P, Grundy C, Thakrar B, Kleinschmidt I, Elliott P, Cancer incidence near radio and television transmitters in Great Britain. I. Sutton Coldfield transmitter. *Am J Epidemiol* 145(1):1-9, 1997.

A small area study of cancer incidence in 1974-1986 was carried out to investigate an unconfirmed report of a "cluster" of leukemias and lymphomas near the Sutton Coldfield television (TV) and frequency modulation (FM) radio transmitter in the West Midlands, England. The study used a national database of postcoded cancer registrations, and population and socioeconomic data from the 1981 census. Selected cancers were hematopoietic and lymphatic, brain, skin, eye, male breast, female breast, lung, colorectal, stomach, prostate, and bladder. Expected numbers of cancers in small areas were calculated by indirect standardization, with stratification for a small area socioeconomic index. The study area was defined as a 10 km radius circle around the transmitter, within which 10 bands of increasing distance from the transmitter were defined as a basis for testing for a decline in risk with distance, and an inner area was arbitrarily defined for descriptive purposes as a 2 km radius circle. The risk of adult leukemia within 2 km was 1.83 (95% confidence interval 1.22-2.74), and there was a significant decline in risk with distance from the transmitter ($p = 0.001$). These findings appeared to be consistent over the periods 1974-1980, 1981-1986, and were probably largely independent of the initially reported cluster, which appeared to concern mainly a later period. In the context of variability of leukemia risk across census wards in the West Midlands as a whole, the Sutton Coldfield findings were unusual. A significant decline in risk with distance was also found for skin cancer, possibly related to residual socioeconomic confounding, and for bladder cancer. Study of other radio and TV transmitters in Great Britain is required to put the present results in wider context. No causal implications can be made from a single cluster investigation of this kind.

(8) Dutta SK, Ghosh B, Blackman CF, Radiofrequency radiation-induced calcium ion efflux enhancement from human and other neuroblastoma cells in culture. *Bioelectromagnetics* 1989;10(2):197-202

To test the generality of radiofrequency radiation-induced changes in 45Ca2+ efflux from avian and feline brain tissues, human neuroblastoma cells were exposed to electromagnetic radiation at 147 MHz, amplitude-modulated (AM) at 16 Hz, at specific absorption rates (SAR) of 0.1, 0.05, 0.01, 0.005, 0.001, and 0.0005 W/kg. Significant 45Ca2+ efflux was obtained at SAR values of 0.05 and 0.005 W/kg. Enhanced efflux at 0.05 W/kg peaked at the 13-16 Hz and at the 57.5-60 Hz modulation ranges. A Chinese hamster-mouse hybrid neuroblastoma was also shown to exhibit enhanced radiation-induced 45Ca2+ efflux at an SAR of 0.05 W/kg, using 147 MHz, AM at 16 Hz. These results confirm that amplitude-modulated radiofrequency radiation can induce responses in cells of nervous tissue origin from widely different animal species, including humans. The results are also consistent with the reports of similar findings in avian and feline brain tissues and indicate the general nature of the phenomenon.

(9) Fesenko, EE, Makar, VR, Novoselova, EG, Sadovnikov, VB, Microwaves and cellular immunity. I. Effect of whole body microwave irradiation on tumor necrosis factor production in mouse cells. *Bioelectrochem Bioenerg* 49(1):29-35, 1999.

Whole body microwave sinusoidal irradiation of male NMRI mice with 8.15-18 GHz (1 Hz within) at a power density of 1 microW/cm^2 caused a significant enhancement of TNF production in peritoneal macrophages and splenic T lymphocytes. Microwave radiation affected T cells, facilitating their capacity to proliferate in response to mitogenic stimulation. The exposure duration necessary for the stimulation of cellular immunity ranged from 5 h to 3 days. Chronic irradiation of mice for 7 days produced the decreasing of TNF production in peritoneal macrophages. The exposure of mice for 24 h increased the TNF production and immune proliferative response, and these stimulatory effects persisted over 3 days after the termination of exposure. Microwave treatment increased the endogenously produced TNF more effectively than did lipopolysaccharide, one of the most potential stimuli of synthesis of this cytokine. The role of microwaves as a factor interfering with the process of cell immunity is discussed.

(10) Hjollund NH, Bonde JP, Skotte J, Semen analysis of personnel operating military radar equipment. *Reprod Toxicol* 11(6):897, 1997.

This is a preliminary survey of semen quality among Danish military personnel operating mobile ground-to-air missile units that use several microwave emitting radar systems. The maximal mean exposure was estimated to be

sham-exposed cells. These effects can be considered to be athermal, since the field strength was much lower than the safety standard for absence of heat generation by microwave fields. There was no significant response in the case of Hsp-27.

(15) Lebedeva NN, Sulimov AV, Sulimova OP, Kotrovskaya TI, Gailus T, Cellular phone electromagnetic field effects on bioelectric activity of human brain. *Crit Rev Biomed Eng* 28(1-2):323-337, 2000.

24 volunteers participated in the experiments. The investigation of EEG reactions to cellular phone (EMF frequency 902.4 MHz and intensity 0.06 mW/cm2) was conducted. Two experiments were performed with each subject--cellular phone exposure and Placebo Duration of the experiment was 60 min: 15 min--background; 15 min--EMF exposure or Placebo; 30 min—after exposure. EEG was recorded in 16 standard leads with "eyes open" and "eyes closed". Special software with non-linear dynamics was developed for EEG analyses. One parameter, multichannel (global) correlation dimension, was calculated. The changes of these parameters can be evidence of brain functional state changes. As a result of EEG record processing, a significant increase of global correlation dimension during the exposure and after exposure period was discovered, more pronounced in the case of "eyes closed". That can be viewed as the manifestation of cortex activation under phone EMF exposure.

(16) Magras, IN, Xenos, TD, RF radiation-induced changes in the prenatal development of mice. *Bioelectromagnetics* 18(6):455-461, 1997.

The possible effects of radiofrequency (RF) radiation on prenatal development has been investigated in mice. This study consisted of RF level measurements and in vivo experiments at several places around an "antenna park." At these locations RF power densities between 168 nW/cm2 and 1053 nW/cm2 were measured. Twelve pairs of mice, divided in two groups, were placed in locations of different power densities and were repeatedly mated five times. One hundred eighteen newborns were collected. They were measured, weighed, and examined macro- and microscopically. A progressive decrease in the number of newborns per dam was observed, which ended in irreversible infertility. The prenatal development of the newborns, however, evaluated by the crown-rump length, the body weight, and the number of the lumbar, sacral, and coccygeal vertebrae, was improved.

(17) Mann, K, Wagner, P, Brunn, G, Hassan, F, Hiemke, C, Roschke, J, Effects of pulsed high-frequency electromagnetic fields on the neuroendocrine system. *Neuroendocrinology* 67(2):139-144, 1998.

The influence of pulsed high-frequency electromagnetic fields emitted from a circularly polarized antenna on the neuroendocrine system in healthy humans was investigated (900 MHz electromagnetic field, pulsed with 217 Hz, average power density 0.02 mW/cm2). Nocturnal hormone profiles of growth hormone (GH), cortisol, luteinizing hormone (LH) and melatonin were determined under polysomnographic control. An alteration in the hypothalamo-pituitary-adrenal axis activity was found with a slight, transient elevation in the cortisol serum level immediately after onset of field exposure which persisted for 1 h. For GH, LH and melatonin, no significant effects were found under exposure to the field compared to the placebo condition, regarding both total hormone production during the entire night and dynamic characteristics of the secretion pattern. Also the evaluation of the sleep EEG data revealed no significant alterations under field exposure, although there was a trend to an REM suppressive effect. The results indicate that weak high-frequency electromagnetic fields have no effects on nocturnal hormone secretion except for a slight elevation in cortisol production which is transient, pointing to an adaptation of the organism to the stimulus.

(18) Marinelli F, La Sala D, Cicciotti G, Cattini L, Trimarchi C, Putti S, Zamparelli A, Giuliani L, Tomassetti G, Cinti C. Exposure to 900 MHz electromagnetic field induces an unbalance between pro-apoptotic and pro-survival signals in T-lymphoblastoid leukemia CCRF-CEM cells. *J Cell Physiol.* 198(2):324-332, 2004.

It has been recently established that low-frequency electromagnetic field (EMFs) exposure induces biological changes and could be associated with increased incidence of cancer, while the issue remains unresolved as to whether high-frequency EMFs can have hazardous effect on health. Epidemiological studies on association between childhood cancers, particularly leukemia and brain cancer, and exposure to low- and high-frequency EMF suggested an etiological role of EMFs in inducing adverse health effects. To investigate whether exposure to high-frequency EMFs could affect in vitro cell survival, we cultured acute T-lymphoblastoid leukemia cells (CCRF-CEM) in the

lymphocytes increased after microwave exposure. The activation of cellular immunity was observed within 3 days after exposure. The diet containing lipid-soluble nutrients (beta-carotene, alpha-tocopherol and ubiquinone Q9) increased the activity of macrophages and T cells from irradiated mice. These results demonstrate that irradiation with low-power density microwaves stimulates the immune potential of macrophages and T cells, and the antioxidant treatment enhances the effect of microwaves, in particular at later terms, when the effect of irradiation is reduced.

(23) Novoselova EG, Ogay VB, Sorokina OV, Glushkova OV, Sinotova OA, Fesenko EE. The production of tumor necrosis factor in cells of tumor-bearing mice after total-body microwave irradiation and antioxidant diet. Electromag. Biol. Med. 23:167-180, 2004.

The effects of repeated treatment with weak microwaves (MW) (8.15–18 GHz, 1 $\mu W/cm^2$, 1.5 h daily) and diet with antioxidants (AO) (β-carotene, α-tocopherol, and ubiquinone Q_9) on production of tumor necrosis factor (TNF) in macrophages and T lymphocytes of healthy and tumor-bearing mice (TBM) were studied. Tumor size and mortality of TBM were also followed. Microwave radiation and antioxidant diet stimulated production of TNF in cells from healthy mice. At early stages, tumor growth induced TNF production in mouse cells; however, this effect decreased as tumors grew. In TBM exposed to MW, TNF production was higher than in unirradiated TBM. Oppositely, AO diet induced TNF production in healthy mice but did not affect TNF secretion in TBM. Accordingly, prolonged treatment of TBM to MW, but not to AO diet, decreased tumor growth rate and increased overall animal longevity. These results suggest that diminished tumor growth rate due to extremely low-level MW exposure of mice carrying tumors, at least in part, was caused by enhancement in TNF production and accumulation of plasma TNF.

(24) Park SK, Ha M, Im H-J. Ecological study on residences in the vicinity of AM radio broadcasting towers and cancer death: preliminary observations in Korea. ***International Archives of Occupational and Environmental Health*** **77(6):387-394, 2004.**

Objectives Public health concern about the health effects of radio-frequency electromagnetic fields (RF-EMFs) has increased with the increase in public exposure. This study was to evaluate some health effect of RF exposure by the AM radio broadcasting towers in Korea.

Methods We calculated cancer mortality rates using Korean death certificates over the period of 1994–1995 and population census data in ten RF-exposed areas, defined as regions that included AM radio broadcasting towers of over 100 kW, and in control areas, defined as regions without a radio broadcasting tower inside and at least 2 km away from the towers.

Results All cancers-mortality was significantly higher in the exposed areas [direct standardized mortality rate ratio (MRR) =1.29, 95%CI=1.12–1.49]. When grouped by each exposed area and by electrical power, MRRs for two sites of 100 kW, one site of 250 kW and one site of 500 kW, for all subjects, and for one site of 100 kW and two sites of 250 kW, for male subjects, showed statistically significant increases without increasing trends according to the groups of electric power. Leukemia mortality was higher in exposed areas (MRR=1.70, 95% CI=0.84–3.45), especially among young adults aged under 30 years (0–14 years age group, MRR=2.29, 95% CI=1.05–5.98; 15–29 age group, MRR=2.44, 95% CI=1.07–5.24) .

Conclusions We observed higher mortality rates for all cancers and leukemia in some age groups in the area near the AM radio broadcasting towers. Although these findings do not prove a causal link between cancer and RF exposure from AM radio broadcasting towers, it does suggest that further analytical studies on this topic are needed in Korea.

(25) Persson BRR, Salford LG, Brun A, Blood-brain barrier permeability in rats exposed to electromagnetic fields used in wireless communication. ***Wireless Network*** **3:455-461, 1997.**

Biological effects of radio frequency electromagnetic fields (EMF) on the blood-brain barrier (BBB) have been studied in Fischer 344 rats of both sexes. The rats were not anesthetised during the exposure. The brains were perfused with saline for 3-4 minutes, and thereafter perfusion fixed with 4% formaldehyde for 5-6 minutes. Whole coronal sections of the brains were dehydrated and embedded in paraffin and sectioned at 5 micrometers. Albumin and fibinogen were demonstrated immunochemically and classified as normal versus pathological leakage. In the present investigation we exposed male and female Fischer 344 rats in a Transverse Electromagnetic Transmission

(embryogenesis, pre-implantation) and days 4-7 p.c. (early organogenesis, peri-implantation). Relative expression and localization of bone morphogenetic proteins (BMP) and their receptors (BMPR), members of a molecular family currently considered as major endocrine and autocrine morphogens and known to be involved in renal development, were investigated in newborn kidneys from RFR exposed and sham irradiated (control) rats. Semi-quantitative duplex RT-PCR for BMP-4, -7, BMPR-IA, -IB, and -II showed increased BMP-4 and BMPR-IA, and decreased BMPR-II relative expression in newborn kidneys. These changes were statistically significant for BMP-4, BMPR-IA, and -II after exposure on days 1-3 p.c. ($P < .001$ each), and for BMP-4 and BMPR-IA after exposure on days 4-7 p.c. ($P < .001$ and $P = .005$, respectively). Immunohistochemistry and in situ hybridization (ISH) showed aberrant expression and localization of these molecules at the histological level. Our findings suggest that GSM-like RFR interferes with gene expression during early gestation and results in aberrations of BMP expression in the newborn. These molecular changes do not appear to affect renal organogenesis and may reflect a delay in the development of this organ. The differences of relative BMP expression after different time periods of exposure indicate the importance of timing for GSM-like RFR effects on embryonic development.

(29) Salford LG, Brun AR, Eberhardt JL, Malmgren L, Persson BRR, Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones. *Environ Health Persp* Online January 29, 2003.

The possible risks of radio-frequency electromagnetic fields for the human body is a growing concern for the society. We have earlier shown that weak pulsed microwaves give rise to a significant leakage of albumin through the blood-brain barrier (BBB). Now we have investigated whether a pathological leakage over the BBB might be combined with damage to the neurons. Three groups of each 8 rats were exposed for 2 hours to GSM mobile phone electromagnetic fields of different strengths. We found, and present here for the first time, highly significant ($p < 0.002$) evidence for neuronal damage in both the cortex, the hippocampus and the basal ganglia in the brains of exposed rats.

(30) Santini R, Santini P, Danze JM, Le Ruz P, Seigne M.Study of the health of people living in the vicinity of mobile phone base stations: I. Influence of distance and sex. *Pathol Biol* (Paris) 50(6):369-373, 2002. [Article in French]

A survey study using questionnaire was conducted in 530 people (270 men, 260 women) living or not in vicinity of cellular phone base stations, on 18 Non Specific Health Symptoms. Comparisons of complaints frequencies (CHI-SQUARE test with Yates correction) in relation with distance from base station and sex, show significant ($p < 0.05$) increase as compared to people living > 300 m or not exposed to base station, till 300 m for tiredness, 200 m for headache, sleep disturbance, discomfort, etc. 100 m for irritability, depression, loss of memory, dizziness, libido decrease, etc. Women significantly more often than men ($p < 0.05$) complained of headache, nausea, loss of appetite, sleep disturbance, depression, discomfort and visual perturbations. This first study on symptoms experienced by people living in vicinity of base stations shows that, in view of radioprotection, minimal distance of people from cellular phone base stations should not be < 300 m.

(31) Sarimov R, Malmgren L.O.G., Markova, E., Persson, B.R.R.. Belyaev, I.Y. Nonthermal GSM microwaves affect chromatin conformation in human lymphocytes similar to heat shock. *IEEE Trans Plasma Sci* 32:1600-1608, 2004.

Here we investigated whether microwaves (MWs) of Global System for Mobile Communication (GSM) induce changes in chromatin conformation in human lymphocytes. Effects of MWs were studied at different frequencies in the range of 895-915 MHz in experiments with lymphocytes from seven healthy persons. Exposure was performed in transverse electromagnetic transmission line cell (TEM-cell) using a GSM test-mobile phone. All standard modulations included 2 W output power in the pulses, specific absorbed rate (SAR) being 5.4 mW/kg. Changes in chromatin conformation, which are indicative of stress response and genotoxic effects, were measured by the method of anomalous viscosity time dependencies (AVTD). Heat shock and treatment with the genotoxic agent camptothecin, were used as positive controls. 30-min exposure to MWs at 900 and 905 MHz resulted in statistically significant condensation of chromatin in lymphocytes from 1 of 3 tested donors. This condensation was similar to effects of heat shock within the temperature window of 40/spl deg/C-44/spl deg/C. Analysis of pooled data from all donors showed statistically significant effect of 30-min exposure to MWs. Stronger effects of MWs was found following 1-h exposure. In replicated experiments, cells from four out of five donors responded to 905 MHz.

(35) Stark KD, Krebs T, Altpeter E, Manz B, Griot C, Abelin T, Absence of chronic effect of exposure to short-wave radio broadcast signal on salivary melatonin concentrations in dairy cattle. *J Pineal Res* 22(4):171-176, 1997.

A pilot study was conducted to investigate the influence of electromagnetic fields in the short-wave range (3-30 MHz) radio transmitter signals on salivary melatonin concentration in dairy cattle. The hypothesis to be tested was whether EMF exposure would lower salivary melatonin concentrations, and whether removal of the EMF source would be followed by higher concentration levels. For this pilot study, a controlled intervention trial was designed. Two commercial dairy herds at two farms were compared, one located at a distance of 500 m (exposed), the other at a distance of 4,000 m (unexposed) from the transmitter. At each farm, five cows were monitored with respect to their salivary melatonin concentrations over a period of ten consecutive days. Saliva samples were collected at two-hour intervals during the dark phase of the night. As an additional intervention, the short-wave transmitter was switched off during three of the ten days (off phase). The samples were analyzed using a radioimmunoassay. The average nightly field strength readings were 21-fold greater on the exposed farm (1.59 mA/m) than on the control farm (0.076 mA/m).

The mean values of the two initial nights did not show a statistically significant difference between exposed and unexposed cows. Therefore, a chronic melatonin reduction effect seemed unlikely. *However, on the first night of re-exposure after the transmitter had been off for three days, the difference in salivary melatonin concentration between the two farms (3.89 pg/ml, CI: 2.04, 7.41) was statistically significant, indicating a two- to seven-fold increase of melatonin concentration. Thus, a delayed acute effect of EMF on melatonin concentration cannot completely be excluded.* However, results should be interpreted with caution and further trials are required in order to confirm the results.

(36) Tattersall JE, Scott IR, Wood SJ, Nettell JJ, Bevir MK, Wang Z, Somasiri NP, Chen X. Effects of low intensity radiofrequency electromagnetic fields on electrical activity in rat hippocampal slices. *Brain Res* 904(1):43-53, 2001.

Slices of rat hippocampus were exposed to 700 MHz continuous wave radiofrequency (RF) fields (25.2-71.0 V m(-1), 5-15 min exposure) in a stripline waveguide. At low field intensities, the predominant effect on the electrically evoked field potential in CA1 was a potentiation of the amplitude of the population spike by up to 20%, but higher intensity fields could produce either increases or decreases of up to 120 and 80%, respectively, in the amplitude of the population spike. To eliminate the possibility of RF-induced artefacts due to the metal stimulating electrode, the effect of RF exposure on spontaneous epileptiform activity induced in CA3 by 4-aminopyridine (50-100 &mgr;M) was investigated. Exposure to RF fields (50.0 V m(-1)) reduced or abolished epileptiform bursting in 36% of slices tested. The maximum field intensity used in these experiments, 71.0 V m(-1), was calculated to produce a specific absorption rate (SAR) of between 0.0016 and 0.0044 W kg(-1) in the slices. Measurements with a Luxtron fibreoptic probe confirmed that there was no detectable temperature change (+/-0.1 degrees C) during a 15 min exposure to this field intensity. Furthermore, imposed temperature changes of up to 1 degrees C failed to mimic the effects of RF exposure. These results suggest that low-intensity RF fields can modulate the excitability of hippocampal tissue in vitro in the absence of gross thermal effects. The changes in excitability may be consistent with reported behavioural effects of RF fields.

(37) Vangelova K, Israel M, Mihaylov S. The effect of low level radiofrequency electromagnetic radiation on the excretion rates of stress hormones in operators during 24-hour shifts. *Cent Eur J Public Health* 10(1-2):24-28, 2002.

The aim of the study was to investigate the effect of long term exposure to low level radiofrequency (RF) electromagnetic (EM) radiation on the excretion rates of stress hormones in satellite station operators during 24-hour shifts. Twelve male operators at a satellite station for TV communications and space research were studied during 24-hour shifts. Dosimetric evaluation of the exposure was carried out and showed low level exposure with specific absorption of 0.1127 J.kg-1. A control group of 12 unexposed male operators with similar job task and the same shift system were studied, too. The 11-oxycorticosteroids (11-OCS), adrenaline and noradrenaline were followed by spectrofluorimetric methods on 3-hour intervals during the 24-hour shifts. The data were analyzed by tests for interindividual analysis, Cosinor analysis and analysis of variance (ANOVA). Significant increase in the 24-hour excretion of 11-OCS and disorders in its circadian rhythm, manifested by increase in the mesor, decrease in the amplitude and shift in the acrophase were found in the exposed operators. The changes in the excretion rates of the

ATTACHMENT 2

7. REFERENCES

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8. GLOSSARY

This section includes technical terms and definitions used within the document. The definitions are given in alphabetical order.

Alpha-band/waves: A specific frequency range (8-13 Hz) of the human EEG activity which is associated with relaxed wakefulness.

Conductivity: A property of a material that determines the magnitude of the electric current density when an electric field is impressed on the material.

Confounding factor (confounder): A confounding factor in an epidemiological study is a variable which is related to one or more of the variables defined in a study. The confounder may mask an actual association or falsely demonstrate an apparent association between the study variables where no real association between them exists. If confounding factors are not measured and considered, bias may result in the conclusion of the study.

Contralateral: On the opposite from another structure.

Contralateral use of mobile phone: Preferred side of the head during mobile phone use corresponds to the side of the head opposite to the tumour.

Crossover design: A cross over design is a special situation where a separate comparison group is not present. Instead, each subject receives both treatments or is exposed to both sham and active exposure and the outcomes under the two conditions are compared within the same subjects. Thus, the subject serves as his/her own control. Ideally in a crossover design, a subject is randomly assigned to a specific treatment/exposure order.

Dielectric properties: In the context of this document the properties of a materials conductivity and permeability.

Double-blind (study): Blinding is used to prevent conscious as well as subconscious bias (e.g. by expectations) in research. In a double-blinded study the participants as well as the researchers are unaware of (blind to) the nature of the treatment (e.g. a new drug or placebo) or the exposure condition (e.g. the exposure under study or sham) that the participants receive in the study.

Ecological studies: An ecological or correlational study is one in which the unit of analysis is an aggregate of individuals and information is collected on this group rather than on individual members. The association between a summary measure of disease and a summary measure of exposure is studied. An error of reasoning occurs when conclusions are drawn about individuals from data that are associated with groups, as relationships observed for groups may not necessarily hold for individuals.

Electric field strength (E): The magnitude of a field vector at a point that represents the force (F) on a charge (q). E is defined as $E = F/q$ and is expressed in units of Volt per meter (V/m).

Electroencephalogram (EEG): Extracellular recording of the electrical activity of the cerebral cortex.

Electromagnetic field: Electromagnetic phenomena expressed in vector functions of space and time.

Electromagnetic radiation: The propagation of energy in the form of electromagnetic waves through space.

EMF: Electromagnetic field.

Exposure: Exposure occurs wherever a person is subjected to electric, magnetic or electromagnetic fields or contact currents other than those originating from physiological processes in the body.

ATTACHMENT 3

FOREWORD

Moscow O BIOLOGICHESKOM DEYSTVII ELEKTROMAGNITNYKH POLEY RADIOCHASTOT in Russian 1973 p 5

/Article by Academician A.I. Berg/

/Text/ The problem pertaining to the influence exerted on the human organism by radiofrequency electromagnetic fields,which are a factor of the industrial environment and of every-day living conditions, continues not only to be important but also acquires special significance in view of developments in science and technology. This applies, first of all, to very low intensity radiofrequencies, particularly the superhigh frequencies.

During the last 20 years numerous studies have been published in the Soviet Union and abroad dealing with this problem. Among these studies a significant place is held by the work conducted at the Laboratory of Radiofrequency Electromagnetic Waves of the Order of the Red Banner of Labor Institute of Labor Hygiene and Occupational Diseases of the Academy of Medical Sciences USSR.

This, the fourth, collection describing the work of this laboratory covers results obtained during the 1968-1972 period and undoubtedly represents a fundamentally new outlook. Contained are results of studies and investigations on hygienic standards during a period of extensive application of safety measures developed by Soviet scientists for improving the sanitary level of industrial sites. Results are also presented on in-depth studies on the mechanism of action of electromagnetic fields, including those at the level of fine physiological regulation, which are of interest not only in biology and medicine, but also in the sense of bionics.

It cannot be doubted that the publication of the present compendium will have a profound effect on a wide circle of scientific and practical workers in the biomedical , engineering and technical fields.

ATTACHMENT 3a

JPRS 63321

30 October 1974

BIOLOGICAL EFFECTS OF RADIOFREQUENCY ELECTROMAGNETIC FIELDS

Moscow O BIOLOGICHESKOM DEYSTVII ELEKTROMAGNITNYKH POLEY RADIOCHASTOT in Russian No 4, 1973

[Book edited by Z. V. Gordon, signed to press 14 December 1973, 400 copies]

CONTENTS PAGE

CONTENTS (Continued) Page

ATTACHMENT 4

Section 2
Approach

Joe A. Elder
Daniel F. Cahill

2.1 General Approach

Although a comprehensive literature review is useful, it is even more desirable if the body of literature is consolidated, analyzed, and synthesized into a statement or statements that relate the presence or absence of biological effects to a meaningful exposure parameter such as dose rate (SAR). To this end, our general approach is essentially as follows:

1. The reports are evaluated for their scientific quality and utility. Acceptable reports contain adequate descriptions of appropriate physical and biological systems and tests.
2. The credible reports are then examined for the relation between the RF energy absorbed and the presence or absence of biological effects in the experimental systems.

2.2 Specific Approach

The literature evaluated for this document includes English-language publications, numerous English translations of Soviet research reports obtained through the U.S. Joint Publications Research Service, and selected technical reports translated from Polish, French, Italian, and Russian.

The extant literature base numbers over 5000 citations, but considerably fewer are valuable in developing exposure guidelines for the following reasons.

1. A large fraction of the literature is available only in Slavic languages.
2. The research reports are uneven in quality and usefulness because authors often failed to include sufficient experimental details to allow reviewers to estimate critical exposure parameters such as incident field intensity, dose rate, or dose.
3. In many review articles, equal currency is given to the conclusions from properly designed and executed studies and to those from less stringently conducted research. Because these uncritical reviews have contributed to the general confusion over the health risks associated with RF radiation, we have relied on original research papers rather than review articles and have chosen to be highly selective in our review.

In reviewing the literature we first evaluate descriptions of frequency, exposure parameters, RF source, experimental species, age, sex, environmental and biological controls, and the statistics employed; and whether actual data are displayed or merely referred to in the text. Many pre-1970 reports are deficient in one or more of these key areas and are either rejected outright if the flaws are judged fatal, or are segregated into the category of reports with "unresolved issues." Reports that provide adequate descriptions of these parameters are further scrutinized for the appropriateness of biological systems, tests, sample sizes, controls, and statistics employed, as well as substantiation of their conclusions. Reports that clear this second hurdle are credible reports, but are considered usable only if biological results are linked explicitly or implicitly to SAR data from the description of the exposure parameters. Reports that fail to provide these parameters are also assigned to the "unresolved issues" category.

2.3 Major Sections

Four major sections follow. They are Physical Principles of Electromagnetic Field Interactions (Sec. 3), Effect of RF-Radiation Exposure on Body Temperature (Sec. 4), Biological Effects of RF Radiation (Sec. 5), and Summary and Conclusions (Sec. 6).

The first part of Sec. 3 presents some introductory information on electromagnetic field theory. Next, RF-field interactions with both simple and complex biological objects, such as the human body, are discussed and, most important, definitions of RF dosimetric terms are given. The mechanisms of RF interactions with biological systems, particularly molecular systems, are discussed. The remaining two major subsections described experimental methods and dosimetric methods used in state-of-the-art research on the biological effects of RF radiation.

Since the absorption of RF energy by biological species can lead to an increase in the temperature of body tissues, it is important to understand how

animals, including man, regulate the additional thermal input of RF-radiation exposure, both physiologically and behaviorally. Section 4 is an introduction to the subject of thermoregulation in both animals and human beings and, in addition, discusses the specific effects of RF radiation on thermoregulatory processes. Also, a description is included of the mathematical models that are being used to predict increases in temperature and activation of thermoregulatory effectors in human beings in simulated RF fields.

Section 5 is a review of the main body of literature on the biological effects of RF radiation. The section contains ten subsections, each of which represents a biological discipline or major research area, ranging from subcellular systems to human beings. In each of the ten areas, the conclusions and generalizations that can be drawn from the review of the literature are presented.

In Sec. 6, the major conclusions and generalizations of Secs. 3, 4, and 5 are presented. Next, many of the reports are tabulated by biological variable and dose rate (SAR). In summary, the reported consequences of the interaction between RF radiation and biological systems are examined from two perspectives (whole-body-averaged SAR and RF-energy-induced core temperature increases) in order to analyze, synthesize, and consolidate the review data into statements that relate biological effects to a meaningful exposure parameter (dose rate or SAR).

ATTACHMENT 5

UDC 613.62:/614.87:537.868.029.64/

THE CLINIC, PATHOGENESIS, TREATMENT, AND OUTCOME OF RADIOWAVE SICKNESS

Moscow O BIOLOGICHESKOM DEYSTVII ELEKTROMAGNITNYKH POLEY RADIOCHASTOT in Russian 1973 pp 43-48

/Article by M.N. Sadchikova and K.V. Glotova/

/Text/ The results of long years of clinical observations have demonstrated that prolonged work under conditions of exposure to SHF electromagnetic waves of significant intensities (up to several mW/sq cm), may result in the development of an occupational disease -- the radiowave sickness. Three essential syndromes of this disease have been identified: the asthenic syndrome, the astheno-vegetative syndrome with vascular dysfunction, and the hypothalamic syndrome. Studies on the mechanism of the neurovascular impairment have revealed the significant role of the deep structures of brain, including the hypothalamic regions. Essential principles have been formulated to cover drug therapy, and late results of treatment.

Many studies are available in the literature which deal with the biological effects of superhigh frequency electromagnetic fields on the human and animal organisms.

The results of clinical studies conducted by a number of authors /N.V. Tyagin, 1960, 1962, 1963, 1965, 1971; A.G. Panov and N.V. Tyagin, 1966; N.V. Uspenskaya, 1961, 1963; Ye. V. Gembitskiy, 1962, 1970; V.N. Gur'yev, 1962, 1963; I.R. Ramzen-Evdokimov and V.A. Sorokin, 1970; E. Klimkova-Deutschova, 1957, 1963; and others/, as well as our own observations, indicate that prolonged work under conditions in which the individual is exposed to SHF electromagnetic fields may lead to the development of a disease entity, the clinical picture of which is characterized by changes in the functional state of the nervous and the cardiovascular systems.

However, up to the present time, a number of questions dealing with the clinical aspects, pathogenesis, and treatment of this disease have not been adequately studied.

Studies which have been conducted over a period of many years at the clinic of the Institute of Labor Hygiene and Occupational Diseases of the Academy of Medical Sciences USSR on a large group of people who were employed in the radio industry, have made it possible to elucidate the nature of the effects of SHF electromagnetic fields of different intensities on the states of the nervous, cardiovascular, neurohumoral, endocrine-metabolic, and other systems, and have also made it possible to investigate the sequence of clinical manifestations of this disease, as well as to classify it and isolate an independent nosologic disease entity -- the radiowave sickness.

These investigations have convinced us that a profound professional pathology arises frequently in people who have, for long periods of time, been employed under conditions where they came into contact with sources of SHF electromagnetic energy and where the intensity of irradiation may attain several milliwatts per square centimeter.

A decrease in the incidence of occupational pathology is observed under the effects of SHF electromagnetic fields of low intensity which do not exceed a hundredth of a milliwatt per square centimeter, and during exposure to more intense radiation for short periods of time.

Simultaneously, vegetative vascular dysfunctions continue to be detected which are related primarily to the increased excitability of the sympathetic branch of the vegetative nervous system.

Exposure to SHF electromagnetic fields of even smaller intensity (from fractions to units of microwatt/square centimeter) do not evoke changes in the state of health of the workers, which could be connected to the exposure.

We have determined that in this professional pathology changes in the central nervous system are of primary importance, particularly in its vegetative branches, and in the cardiovascular system, which are characterized by a unique clinical symptomatology with two forms of vegetative reactions which are determined by dysfunction in the interaction between the excitability of the sympathetic and the parasympathetic branches of the central autonomic formations in the brain, and the state of the cortical processes.

On the basis of our own observations, and the data in the literature, the clinical picture of radiowave sickness may be represented by the following three syndromes.

The asthenic syndrome is encountered in the initial stages of the disease. It seems to be largely based on "exhaustion" of the central nervous system. The vegetative changes are totally defined with dominance of vagotonia, arterial hypotension, and bradycardia. On the whole, the syndrome has a favorable outcome, and does not decrease the work capacity of the patients for long periods of time.

The astheno-vegetative syndrome with vascular dysfunction is the most frequently encountered entity, and is usually seen in moderate and severe stages of the disease. The clinical picture of this syndrome is marked by more pronounced asthenic phenomena and primary features attributed to vegetative dysfunctions which are related to elevated excitability of the sympathetic branch of the vegetative nervous system, vascular instability with hypertension, and vasospasms. The latter factors frequently determine the severity of the disease.

At a given stage of the increasing pathological phenomena, the hypothalamic syndrome (vegetative vascular form) arises, which is characterized by the development of paroxysmal states in the form of sympathoadrenal crises. The course of the astheno-vegetative and the hypothalamic syndromes are protracted, and frequently lead to decreased work capability.

In advance stages of the disease, with increasing asthenic phenomena, emotional and vegetative vascular instability, and particularly in cases characterized by paroxysmal states, a clinical picture of ischemic heart disease develops, along with hypertension, and sometimes changes in the dynamics of brain circulation which sharply decrease the work capability of the patients.

The fact that vasospastic phenomena are encountered in moderate and advanced stages of the radiowave sickness has been supported by instrumental investigations. Thus, the results of rheographic investigations of cerebral hemodynamics have demonstrated a decrease in pulse volume, and increased tone of intra- and extracranial blood vessels which are returned to the normal state by the nitroglycerin test. Mechanocardiographic data have indicated increased tone of muscular vessels, and an increase in peripheral resistance.

Electroencephalographic and certain biochemical studies are in agreement with the clinical features of the radiowave disease and its course. During initial stages of the disease the patients may evidence desynchronization of the alpha activity, a stability in the alpha rhythm, or desynchronization of the alpha rhythm; in moderate and advanced stages of the disease, bilateral synchronous discharges of the theta and delta waves are evident, and sometimes diffuse slow waves are detected, particularly under the influence of hyperventilation which indicates that the subcortical structures are involved in the pathological process.

Changes in the carbohydrate metabolism correlate well with the tendencies in the vegetative reactions, particularly in the changes of the sugar curves following glucose loading. Thus, in the vegetative vascular changes resulting in vagotonia, we encounter depressed curves, while in vegetative vascular dysfunctions which result in sympathetic tone along with sympathoadrenal crises, we encounter so-called diabetic or double-peaked sugar curves. Changes in the sugar curves may be related to impairment of the mechanisms responsible for the regulation of homeostasis, and primarily this would involve deficiencies in the hypothalamus - hypophysis-adrenal cortex system. In order to evaluate the functional state of this change we investigated the levels of certain mediators of the nervous system, such as blood levels of histamine and acetylcholine, urinary levels of epinephrine and norepinephrine, as well as the glucocorticoid function of the adrenal glands.

Blood levels of histamine in patients with radiowave sickness are elevated. Changes in the concentration of acetylcholine are less pronounced; however, they are accompanied by changes in the activity of cholinesterase.

In moderate and pronounced stages of the disease the ratio of epinephrine and norepinephrine is decreased along with normal parameters -- actual variations and mean values --for the levels of catecholamines in 24 hour urine samples. In paroxysmal states a sharp variation is evident in the secretion of adrenalin, and a definite rhythm in the excretion of norepinephrine characterized by increased secretion of norepinephrine in the evening and at night, which points to dysfunction in the mechanisms responsible for the regulation of the activity of the sympathoadrenal system.

Results of investigations on the glucocorticoid function of the adrenal glands -- conducted by S.P. Korenevskaya -- have

pointed to definite changes in the levels and relationships of cortisol, cortisone, and their tetrahydro derivatives. Changes in the relationships between the levels of tetrahydro derivatives of cortisol and cortisone, as well as between cortisol and cortisone, indicate dysfunctions in the mechanisms responsible for the transformation of cortisol into cortisone.

Subcutaneous administration of small doses of epinephrine (0.3 ml of 0.1% solution) elicits marked autonomic vascular reactions in the patients, as well as more distinct changes in the daily dynamics of catecholamine excretion, and impairment in the glucocorticoid function of the adrenal glands.

Development of pronounced vegetative vascular reactions in patients with radiowave sickness in response to the administration of small doses of epinephrine suggests significant impairment in the vegetative formations of the brain. These findings make it seem likely that the dysfunctions of the functional state of the sympathoadrenal system and the glucocorticoid function of the adrenal glands in patients with radiowave disease are the sequelae of primary lesions in the deep structures of the brain which are responsible for the central regulation of the neurohumoral and the neurohormonal processes in the organism. The investigations which have been conducted are in agreement with the clinical and electroencephalographic findings on the involvement of the deep structures of the brain, including in part the hypothalamic structures. Furthermore, dysfunction of the hypothalamic-hypophyseal-adrenal cortical system which arises on the basis of neurasthenia may be highly important in the pathogenic mechanisms responsible for the development of the clinical symptoms of the radiowave sickness.

On the basis of the pathogenic mechanisms of radiowave disease, treatment of the neurovascular dysfunctions should be conducted with consideration of the etiology of the disease, the state of the cortical function, and the predominant type of vegetative reaction which is involved in the development of a given syndrome, as well as the general state of the patient, and individual peculiarities. This has been covered in the publications of Ye. V. Gembitskiy /1970/.

Analysis of the results obtained with hospital treatment of 152 patients (129 men, 23 women, of relatively young age - 80% up to 40 years of age) helped elucidate the principles of drug therapy of patients with various clinical syndromes of the radiowave disease.

Patients with asthenic syndrome should be treated with analeptic and sedative therapy (bromine preparations, leonorus, valerian, hawthorn, korvalol /transliteration/) in combination with stimulants (sodium arsenate, strychnine nitrate, securenin, tincture of ginsen root, pankrotin /transliteration/, and others). When vagotonia predominates the vegetative vascular dysfunction, treatment should be instituted with cholinolytic drugs (atropine, amizil /transliteration/) as well as preparations with combined effects (belloyd, bellaspon /both transliterations/), and small doses of subcutaneous insulin followed by intravenous glucose infusion.

Therapy should include therapeutic gymnastics, massage, hydrotherapy (cold baths, circulating shower baths) as well as psychotherapeutic talks.

In the case of patients with astheno-vegetative syndrome and hypothalamic syndrome, and which also evidence marked vegetative vascular dysfunction and sympathoadrenal crises, they should, in addition to analeptic and sedative therapy, receive weak tranquilizers (seduksen, elenium, trioksazin /all transliterations/) and antihistamines (dimedrol, pipol'fen, suprastin /all transliterations/) which potentiate their actions as well as vasodilators. Of the large arsenal of modern vasodilators, preference should be given to magnesium sulfate which also possesses sedative qualities in combination with reserpine which is a weak tranquilizer, and hypotensive ganglionic blocking agent. In the presence of persistent hypertension, agents must be included which act directly on the vascular wall (papaverine, eufillin /transliterated/, no-shpa /transliteration/). Patients with coronary insufficiency should receive preparations which improve coronary circulation and myocardial metabolism (validol, nitroglycerin, intensain, panangin, izoptin /all transliterations/) as well as analgesics (injections of anal'gin /transliteration/).

Excellent therapeutic effects are obtained by injections of ATP, vitamins of group B, glutamic acid, oxygen therapy which improve the metabolism of amines and oxidative processes in the organism.

In view of the elevated reactivity of the patients, the selection of the appropriate therapeutic agents and doses requires a highly individualized approach. Particular care must be exercised in assigning drugs with narcotic action.

In cases of sympathoadrenal crises, sympatholytic drugs (small doses of chlorpromazine or propazin /transliteration/)

are recommended in combination with injections of vasodilators and analgesics.

The effectiveness of treatment is determined not only by the use of the proper drugs but also by the duration of the course of treatment, and the appropriate type of job placement.

Superior therapeutic results are obtained in patients with the asthenic syndrome in whom clinical improvement appears in two to three weeks. Following discharge from the hospital, 54 patients (out of 61) with the asthenic syndrome returned to their previous work; 7 were assigned to other types of jobs.

It was more difficult to achieve therapeutic effects in patients with astheno-vegetative and hypothalamic syndromes. Following a three- to six-week period of treatment, 35 of the 80 patients with the astheno-vegetative syndrome returned for their previous work and 7 were assigned to different types of work. In the case of 28 patients with the astheno-vegetative syndrome, and 2 patients with the hypothalamic syndromes, temporary releasefrom work had to be obtained for occupational reasons for periods of 1 to 2 months; simultaneously, these patients underwent further treatment under ambulatory conditions or at sanitoria or health resorts. Eleven patients with the astheno-vegetative syndrome, and eight patients with the hypothalamic syndrome, were classified as Group III occupational invalids.

Further studies were conducted on a group of 100 patients. The periods of observation lasted from one to ten years, but in the majority of cases the observations were conducted for three to six years. At the time of the last examination most of the patients were between from 40 to 45 years of age.

The results of the investigations showed that despite repeated courses of treatment, temporary relief from irradiation, the course of the disease became progressively more severe as the patients returned to their previous conditions of work, and this was particularly evident in patients with astheno-vegetative and hypothalamic syndromes (Table 1, group A). Paroxysmal states are frequently noted in such patients, and in advance cases hypertension and ischemic heart disease appear. The work capacity of such individuals becomes limited, and in consequence, they were either classified as Group III, or even Group II occupational invalids, or else they were assigned to different tasks without an adverse change in their classification rating.

At the same time, cessation of work under conditions of irradiation, results essentially in the stabilization of the process (Table 1, group B).

Therefore, the results of our long-term followup indicate that in moderate and severe forms of the disease, which are characterized by the development of the astheno-vegetative and the hypothalamic syndromes, work under conditions of exposure to irradiation should be terminated.

Individuals with initial forms of the disease may return to previous conditions of work under the condition that they be carefully followed and periodically undergo repeated courses of treatment.

Timely job placement of the patients, along with therapeutic and prophylactic measures, create conditions which lead to improvement in the state of health and prolong the work activity of patients with radiowave sickness.

ATTACHMENT 6

MOUNT DESERT ISLAND HOSPITAL
CARDIOPULMONARY SERVICES

Patient Information

Name: **FOX, NICHOLS**
ID #: **D21109=66352** Age: **65** Sex: **Unknown**
Referring Physician: **K. KOTAS, MD**
Indications: **DYSRHYTHMIA, PVCS**
Medications:
Recorder: **H12.Cont.3.14** Recorder No: Hookup Tech: **LTS** Analyst: **RMT**

Scan Number:
Date Recorded: **06/19/2008 14:23:56**
Date Processed: **06/23/2008**
Date Of Birth: **09/14/1942**

Scan Criteria

SVPB Prematurity: **20 %**
ST Segment Elevation: **200 µV**
ST Segment Depression: **100 µV**

Pause: **2000 msec**
Long RR/Pause: **All Beats**
Pause Excluded From HR: **No**

Tachycardia: **100 BPM**
Bradycardia: **60 BPM**
Minimum Tachy/Brady: **3 min**

Summary Statistics

Total QRS: **113581** Recording Duration: **24 hr, 0 min** Analyzed Data: **24 hr, 0 min**

Rate Statistics:

Min Rate: **54 at 17:15:38**
Max Rate: **129 at 11:52:33**
Mean Rate: **79**

Tachycardia/Bradycardia Episodes:

Longest Tachycardia: **0:08:45, 108 BPM Avg at 12:52:06**
Fastest Tachycardia: **0:04:20, 113 BPM Avg at 11:51:06**
Longest Bradycardia: **0:07:15, 59 BPM Avg at 23:13:56**
Slowest Bradycardia: **0:03:45, 59 BPM Avg at 23:01:31**

Supraventricular Ectopy:

AFib (Time%)/peak avg. rate: **(0) / 0 BPM**
Singles: **38**
Couplets: **2**
Runs: **0**
Total: **42**

Ventricular Ectopy:

Singles: **22610**
Couplets: **35**
Runs: **0**
R on T: **1**
Total: **22681**

MOUNT DESERT ISLAND HOSPITAL BAR HARBOR, ME

Name	Number	Sex	Age	Admit	Disc.	F/C	Type
FOX NICOLS	D21109	F	65	06/19/08	06/19/08	MB5	O/P

DOB: 09/14/1942 M/R#: 035112 Physician: KOTAS KATH RM:
HOLTER MONITOR INTERPRET & RE 93227 COMPLETE 06/19/08 15:00 RMT 66352

INTERPRETATION: This patient reported chest constriction on two occasions, and on each occasion she was in sinus rhythm with no ST segment shifts. The patient reported irregular heart rate and palpitations on several occasions. At these times she was having unifocal ventricular premature complexes of varying frequency.
The basic rhythm is normal sinus rhythm with normal PR, QRS and QT intervals. There was a rather marked degree of ventricular ectopic activity with more than 22,000 ventricular premature complexes in 24 hours. The vast majority of these ventricular premature complexes came from a single focus and there were frequent episodes of pairing. There were no episodes of non-sustained ventricular tachycardia.
In summary, this tracing shows a rather marked degree of ventricular ectopic activity with at least 30 episodes of pairing in 24 hours. Evaluation for underlying causes is recommended. During episodes of chest constriction, there were no ST segment shifts.
Edward Gilmore, M.D./ds DD. 06/24/08 0858 DT: 06/24/08 1057

6-24-08 discussed c pt

Reviewing Physician ______ E.B. GILMORE, MD

ATTACHMENT 7

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 8 2002

OFFICE OF
AIR AND RADIATION

Janet Newton
President
The EMR Network
P.O. Box 221
Marshfield, VT 05658

Dear Ms. Newton:

Thank you for your letter of January 31, 2002, to the Environmental Protection Agency Administrator Whitman, in which you express your concerns about non-thermal effects of radiofrequency (RF) radiation and the adequacy of the Federal Communications Commission's RF radiation exposure guidelines. The Administrator has asked us to critically examine the issues you bring to our attention, and we will be responding to you shortly.

We appreciate your interest in the matter of non-thermal RF exposure, possible health risks, and Federal government responsibility to protect human health.

Sincerely,

Frank Marcinowski, Director
Radiation Protection Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 16 2002

OFFICE OF
AIR AND RADIATION

Ms. Janet Newton
President
The EMR Network
P.O. Box 221
Marshfield, VT 05658

Dear Ms.Newton:

This is in reply to your letter of January 31, 2002, to the Environmental Protection Agency (EPA) Administrator Whitman, in which you express your concerns about the adequacy of the Federal Communications Commission's (FCC) radiofrequency (RF) radiation exposure guidelines and nonthermal effects of radiofrequency radiation. Another issue that you raise in your letter is the FCC's claim that EPA shares responsibility for recommending RF radiation protection guidelines to the FCC. I hope that my reply will clarify EPA's position with regard to these concerns. I believe that it is correct to say that there is uncertainty about whether or not current guidelines adequately treat nonthermal, prolonged exposures (exposures that may continue on an intermittent basis for many years). The explanation that follows is basically a summary of statements that have been made in other EPA documents and correspondence.

The guidelines currently used by the FCC were adopted by the FCC in 1996. The guidelines were recommended by EPA, with certain reservations, in a letter to Thomas P. Stanley, Chief Engineer, Office of Engineering and Technology, Federal Communications Commission, November 9, 1993, in response to the FCC's request for comments on their Notice of Proposed Rulemaking (NPRM), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (enclosed).

The FCC's current exposure guidelines, as well as those of the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-ionizing Radiation Protection, are thermally based, and do not apply to chronic, nonthermal exposure situations. They are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock and burn. The hazard level (for frequencies generally at or greater than 3 MHz) is based on a specific absorption dose-rate, SAR, associated with an effect

that results from an increase in body temperature. The FCC's exposure guideline is considered protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified.

These guidelines are based on findings of an adverse effect level of 4 watts per kilogram (W/kg) body weight. This SAR was observed in laboratory research involving acute exposures that elevated the body temperature of animals, including nonhuman primates. The exposure guidelines did not consider information that addresses nonthermal, prolonged exposures, i.e., from research showing effects with implications for possible adversity in situations involving chronic/prolonged, low-level (nonthermal) exposures. Relatively few chronic, low-level exposure studies of laboratory animals and epidemiological studies of human populations have been reported and the majority of these studies do not show obvious adverse health effects. However, there are reports that suggest that potentially adverse health effects, such as cancer, may occur. Since EPA's comments were submitted to the FCC in 1993, the number of studies reporting effects associated with both acute and chronic low-level exposure to RF radiation has increased.

While there is general, although not unanimous, agreement that the database on low-level, long-term exposures is not sufficient to provide a basis for standards development, some contemporary guidelines state explicitly that their adverse-effect level is based on an increase in body temperature and do not claim that the exposure limits protect against both thermal and nonthermal effects. The FCC does not claim that their exposure guidelines provide protection for exposures to which the 4 W/kg SAR basis does not apply, i.e., exposures below the 4 W/kg threshold level that are chronic/prolonged and nonthermal. However, exposures that comply with the FCC's guidelines generally have been represented as "safe" by many of the RF system operators and service providers who must comply with them, even though there is uncertainty about possible risk from nonthermal, intermittent exposures that may continue for years.

The 4 W/kg SAR, a whole-body average, time-average dose-rate, is used to derive dose-rate and exposure limits for situations involving RF radiation exposure of a person's entire body from a relatively remote radiating source. Most people's greatest exposures result from the use of personal communications devices that expose the head. In summary, the current exposure guidelines used by the FCC are based on the effects resulting from whole-body heating, not exposure of and effect on critical organs including the brain and the eyes. In addition, the maximum permitted local SAR limit of 1.6 W/kg for critical organs of the body is related directly to the permitted whole body average SAR (0.08 W/kg), with no explanation given other than to limit heating.

I also have enclosed a letter written in June of 1999 to Mr. Richard Tell, Chair, IEEE SCC28 (SC4) Risk Assessment Work Group, in which the members of the Radiofrequency Interagency Work Group (RFIAWG) identified certain issues that they had determined needed to be addressed in order to provide a strong and credible rationale to support RF exposure guidelines.

Federal health and safety agencies have not yet developed policies concerning possible risk from long-term, nonthermal exposures. When developing exposure standards for other physical agents such as toxic substances, health risk uncertainties, with emphasis given to sensitive populations, are often considered. Incorporating information on exposure scenarios involving repeated short duration/nonthermal exposures that may continue over very long periods of time (years), with an exposed population that includes children, the elderly, and people with various debilitating physical and medical conditions, could be beneficial in delineating appropriate protective exposure guidelines.

I appreciate the opportunity to be of service and trust that the information provided is helpful. If you have further questions, my phone number is (202) 564-9235 and e-mail address is hankin.norbert@epa.gov.

Sincerely,

Norbert Hankin
Center for Science and Risk Assessment
Radiation Protection Division

Enclosures:

1) letter to Thomas P. Stanley, Chief Engineer, Office of Engineering and Technology, Federal Communications Commission, November 9, 1993, in response to the FCC's request for comments on their Notice of Proposed Rulemaking (NPRM), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation
2) June 1999 letter to Mr. Richard Tell, Chair, IEEE SCC28 (SC4) Risk Assessment Work Group from the Radiofrequency Radiation Interagency Work Group

AFFIDAVIT OF DANIEL KLEIBER

State of Wisconsin]
} ss.
County of Jefferson]

DANIEL KLEIBER being duly sworn deposes and says:

1. My name is Daniel Kleiber. I live in the country at N9387 Riverview Drive, Waterloo, Wisconsin.

2. My wife and I have lived in Waterloo, Wisconsin for 13 years.

3. I am a type 1 diabetic and I use an insulin pump. My blood sugar is under good control, as long as I can avoid exposure to high frequencies.

4. I have had many instances where my blood sugar has increased dramatically in response to high frequency exposures and I have not been able to lower it with additional insulin until the high frequency exposure has stopped. One particularly memorable incident occurred when the neighbor, for whom I custom combine and who carries a cellphone that is turned on, joined me in the combine for about 3 hours. Prior to him entering the combine with his cellphone my blood sugar was 100-120. A short time later I tested and it was over 300. I took a bolus of insulin several times and my blood sugar did not respond. Minutes after he left the cab with his cellphone I tested and my blood sugar was dropping. It bottomed out near 30. I drank four cans of soda to get my blood sugar back to normal. This is far more than normally required and seemed to be because the insulin was finally able to act properly. Another incident occurred when we were visiting my wife's relatives in Canada. I again had high blood sugar that would not respond properly to insulin. We discovered that the neighbor's wireless router was responsible. I have also had similar reactions to high frequencies on electrical wiring, also known as "dirty" power or electrical pollution.

5. I am concerned that expansion of wireless broadband would endanger my health by making my blood sugar harder to control.

6. When I am exposed to high frequencies, I feel ill. If I have to run errands in town, I usually return home with a headache. I often find my blood sugar goes up in stores. I have been forced to leave meetings early because of feelings of nausea.

7. We have two small children whom we will be homeschooling so they will not be exposed to dangerous high frequency environment in our local public school (Waterloo, WI). The school has both WiFi and high electrical pollution levels.

8. Our children are both sensitive to high frequencies. They feel sick, become hyperactive, less able to think logically and control their behavior. They also sleep

EXHIBIT 11

poorly in bad high frequency environments. We do not want to have them involuntarily exposed to a pollutant that has such profound detrimental effects on them.

9. I am a beekeeper. My bees are healthy at this time. I am concerned that an increase in transmitted microwave and radiowave radiation would interfere with their navagational abilities, impair their immune systems, and therefore decrease the health and vigor of my hives. Please see The Birds, the Bees and Electromagnetic Pollution by Dr. Andrew Goldsworthy May 2009, Exhibit A, for more information.

10. Because of the serious effects exposure to high frequencies has on our health, we do not own a cellphone, cordless phones, wireless router, baby monitors, or subscribe to wireless internet.

11. My personal experience has shown me how serious the effects of exposure to high frequencies can be. Over the years I have only occassionally had time to read the research on high frequency exposure. I recently read the paper by Halberg and Johannsen in *Pathophysiology* [Ö. Hallberg, O. Johansson, Apparent decreases in Swedish public health indicators after1997—Are they due to improved diagnostics or to environmental factors? Pathophysiology(2009)]. I believe that paper alone should raise enough doubts for you to halt expansion of wireless internet and expansion of other wireless communications until safety standards to protect the public health during continuous exposure to high frequencies from all sources including transmitted and electrical pollution. For more information about electrical pollution as a potent source of high frequency exposure please see www.electricalpollution.com.

12. I am very concerned that a continued increase in levels of transmitted radiowave and microwave radiation will be very detrimental to my health and that of my family and will further impair our ability to live a normal life.

13. Because of the number of cell service carriers and wireless internet providers operating in our area, we have many overlapping signals from them and the associated cellphones and wireless internet routers and we are concerned that there are insufficient safety standards to manage the exposure of our family to these signals.

14. As a result, we are concerned about the long-term and short-term health effects of continuous exposure to all these signals.

15. We do not want to be guinea pigs for the government-sanctioned rollout of new technologies with insufficient safety standards. We do not want to continue to be part of the experiment being involuntarily carried out on the American people verifying the results of decades old research showing that the long-term health effects of these wireless signals can be profound and dangerous.

16. Without conservative safety standards designed to protect the public health of our entire population during continuous exposures from all detrimental health effects and the

rigorous enforcement of such standards, we fear the hazards to our family's health of this low level radiation over time.

17. We are concerned about having to live next to antennas and transmitters if wireless internet is built out in our local environment. We have a right to be safe in our homes and our schools and workplaces, and we have a right to current safety standards based on current science, not mistaken assumptions (the thermal model) and wishful thinking.

18. We understand that the EMR Policy Institute is preparing comment to submit in the current Federal Communications Commission proceeding to develop the policy for providing high-speed internet service throughout the country - FCC 09-31, A National Broadband Plan for Our Future.

19. The undersigned and all the persons in our household hereby designate The EMR Policy Institute to speak on our behalf on this FCC proceeding for the purpose of defending our rights to be safe in our own home, in our schools and our workplaces and neighborhoods from the invasion into our home, schools and workplaces of signals that may cause harm to us, because the FCC's current RF exposure guidelines are inadequate in light of the findings of current science.

20. I ask that the FCC accept this affidavit and the attached exhibit into evidence for consideration under FCC 09-31, A National Broadband Plan for Our Future, as it is material evidence of the existence of signals to which my family and I are subject, yet without proper standards based on current science.

Daniel Kleiber

Sworn to before me

This 05 day of June, 2009

Rebecca L. Jones
Notary Public Exp 5-13-12

County of Jefferson
State of Wisconsin

Exhibit A

The Birds, the Bees and Electromagnetic Pollution
Dr. Andrew Goldsworthy
May 2009

How electromagnetic fields can disrupt both solar and magnetic bee navigation and reduce immunity to disease all in one go

Many of our birds are disappearing mysteriously from the urban environment and our bees are now under serious threat. There is increasing evidence that at least some of this is due to electromagnetic pollution such as that from cell towers, cell phones, DECT cordless phones and Wifi. It appears capable of interfering with their navigation systems and also their circadian rhythms, which in turn reduces their resistance to disease. The most probable reason is that these animals use a group of magnetically-sensitive substances called *cryptochromes* for magnetic and solar navigation and also to control the activity of their immune systems.

Birds are very sensitive to electromagnetic fields and some may find the electromagnetically polluted urban environment no longer tolerable. Migratory birds may also lose their sense of direction and never reach their intended destination, perhaps just falling into the sea on the way. Bees are even more under threat and are extremely important to us. Without bee pollination, there would be very few brightly colored or scented flowers in the countryside or in our gardens and many of our crops would be devastated. We would be left just with crops that are wind pollinated (mostly cereals) that do not on their own provide a healthy balanced diet, nor do they act as host to the friendly nitrogen fixing bacteria that are essential to the sustainable fertility of our soil. This may be a very heavy price to pay for our unrestricted use of cell phones and other forms of wireless communication.

What are cryptochromes?

The cryptochromes are a group of pigments found in virtually all animals, plants and many bacteria. They consist of a flavin (a derivative of vitamin B2_) folic acid and protein. Like all pigments, they get their colour by absorbing light at specific wavelengths. The cryptochromes absorb blue-green and ultra-violet light and use its energy to drive *photochemical reactions* where light energy is converted to chemical energy. The earliest cryptochromes used this energy to repair damaged DNA. However, more modern ones have evolved in both animals and plants where they measure light to reset their biological clocks. In some animals, they also sense the direction of the Earth's magnetic field. Unfortunately, cryptochromes are very badly affected by weak oscillating electromagnetic fields that are orders of magnitude weaker than the Earth's steady magnetic field. This can disrupt both solar and magnetic navigation, which can account for colony collapse disorder in bees, the loss of some migratory birds and butterflies and a weakening of the immune system in many more organisms.

How cryptochrome measures light

The energy of light is used to transfer an electron from one part of the cryptochrome molecule to another to form a pair of what chemists call *free radicals*. The electron finds its way back of its own accord to restore the *status quo*, but this takes longer and results in an accumulation of cryptochrome in the free radical form. It soon reaches equilibrium when the rate of free radical formation equals its rate of destruction, at which point the proportion in the free radical form is a measure of the current brightness of the light.

How cryptochrome senses magnetic fields

This depends on the fact that free radicals are affected by magnetic fields. Steady magnetic fields delay the return of the displaced electron so that there is an even greater accumulation of cryptochrome in the free radical form. This can be sensed by the cell in the same way as it senses the effect of light. The direction of the field can be found by having an array of cryptochrome molecules oriented in different directions, as they would be in the compound eye of an insect or in the retina of a vertebrate's eye. Most of the cryptochrome is found in the eyes, but it is quite distinct from the regular visual pigments (rhodopsins) that are used in normal vision. However, their combined effect gives the animal the potential to "see" the direction of the magnetic field, possibly as an extra colour superimposed on its field of vision.

Oscillating magnetic fields severely disrupt cryptochrome function.

Ritz and co-workers (Nature Vol. 429 13th May 2004 pp 177-180) showed that, provided they were given light of the wavelengths absorbed by cryptochrome , robins could orient themselves for navigation in the Earth's magnetic field. However, this was severely disrupted by the application of extremely weak alternating electromagnetic fields. A broad spectrum of frequencies between 0.1-10MHz at field strengths as little as 0.085 microtesla (about 500 times weaker than the Earth's field) made the birds completely unable to respond to the Earth's field! The quantum mechanics of the process suggest that these alternating fields are likely to be perceived as a blinding "*magnetic light*" that blots out the bird's "*magnetic vision*".

Mobile telecommunications generate similar fields.

Microwaves that are modulated to carry digital information generate a similar broad spectrum of frequencies in this range. These frequencies occur in most mobile telecommunications, including cell phones, DECT cordless phones and Wifi. These too may blot out "*magnetic vision*". In real life, even lower field strengths are likely to disturb magnetic navigation, since radiation that is too weak to blot out *magnetic vision* may still be strong enough to distort the bird's perception of the Earth's field so that it flies in the wrong direction.

Their sheer numbers may also be a problem.

What may be even more important is the sheer multiplicity of modern-day wireless devices; most western households have several. They may suddenly burst into life and/or be mobile; so as to give the birds continually conflicting navigational data. Many may find this disturbing. It's like being constantly bombarded from all directions by the flashing lights of a disco. We should not be too surprised to find that these birds may choose to leave the area.

Bees may not like the radiation either.

Like the birds, bees may also find electromagnetic fields disturbing, and choose to leave the area. Scientists who put DECT cordless phone base stations (cheap sources of modulated microwaves) next to their beehives found that they made the bees behave abnormally and were less likely to return to the hive (**http://tinyurl.com/rans84**). Based on this observation, beekeepers would be well advised to switch off their cell phones when visiting their hives. Even when not in use, cell phones periodically emit bursts of radiation at full power so that the phone company can keep track of where you are.

Cryptochrome and solar navigation

Many animals, including birds and bees, can also navigate by using the position of the sun. But in order to do this, they must have an internal clock to compensate for its changing position throughout the day. The mechanism of this clock has been extensively studied in mutants of the fruit fly *Drosophila*. It uses cryptochrome to sense the light-dark transitions at dawn and dusk to reset its clock and also to keep it running at the correct speed. Unfortunately, the use of cryptochrome also makes the clock sensitive to magnetic fields. Yoshii *et al*. found that a 300 microtesla steady field could alter the speed of the clock or even stop it altogether. (Yoshii *et al*. **http://tinyurl.com/cx7xaa**) They didn't test weak alternating fields, but given the findings of Ritz *et al*. and the fact the sensing of light and magnetic fields by cryptochrome uses the same basic mechanism, it is likely that these too would disrupt the clock's normal functions. The consequence of this would be that electromagnetic fields of this sort would render the animal unable to compensate accurately for the changing position of the sun. This means that both solar and magnetic navigation would fail together and, if there were no landmarks to guide it, the animal would be completely lost. This could explain colony collapse disorder when bees do not return to the hive, why it is so prevalent in the featureless almond plantations of the USA and why there are increasing losses of animals that have the option to use both.

Circadian rhythms are affected too

Circadian rhythms are natural metabolic rhythms that occur in virtually all higher organisms. They too are driven by the biological clock so that the organism can *anticipate* the coming of dawn and dusk and modify its metabolism to be ready for the new conditions. Many metabolic functions are controlled in this way. These include the

rhythmic production of melatonin (a sleep hormone) and the diversion of metabolic resources from physical activity during the day, to repair and the immune system at night.

Consequences of losing the circadian rhythm

If the rhythm were to be lost or become weaker due to a failure of the clock as a result of electromagnetic exposure, it would have serious consequences. In humans it would result in tiredness during the day, poor sleep at night, and a reduced nightly production of the sleep hormone melatonin. All of these effects have been reported in people exposed to the radiation from cell towers and other sources of continuous weak electromagnetic radiation such DECT phone base stations and Wifi routers. Also, any weakening of the amplitude of these rhythms means that **at no time will any process controlled by them ever function at maximum power.** In particular, the immune system may never be able to summon up the overwhelming power that is sometimes needed to overcome pathogens or to destroy developing cancer cells before they get out of control. This could in part explain the increased risk of cancer often found in epidemiological studies of people living near mobile phone base stations. It may also be an important factor in the continuing reduction in the health of our bee population and its apparently reduced ability to resist pathogens.

Andrew Goldsworthy BSc PhD

May 2009

AFFIDAVIT OF CATHERINE KLEIBER

State of Wisconsin]
] ss.
County of Jefferson]

CATHERINE KLEIBER being duly sworn deposes and says:

1. My name is Catherine Kleiber. I live in the country at N9387 Riverview Drive, Waterloo, Wisconsin.

2. My husband and I have lived in Waterloo, Wisconsin for 13 years.

3. I have radiowave sickness. It was originally misdiagnosed as chronic fatigue syndrome. However once I found out I was being exposed to large amounts of high frequencies from electrical pollution, including "dirty" power on my wires and plumbing, and reduced that exposure as much as I was able, I began to recover almost immediately.

4. Here is a brief summary of symptoms I experienced during my high frequency related illness: heart palpitations, very pain sensitive, constant nerve pain, sluggish reactions, poor depth perception, muscle weakness, lactic acid buildup with little exertion, unrefreshing sleep, often wakeful in the night, fatigue, night sweats, poor circulation to my extremities, reflux, difficulty concentrating, difficulty thinking, inability to make decisions, low-grade fever and chills, headaches, and a dry sore throat.

5. We have reduced our exposure as much as possible and I am well at home.

6. I get sick again whenever I am around higher levels of high frequencies such as when I go into town or go over to friend's homes. The degree of sickness and the exact symptoms vary depending on the duration and strength of the exposure, as well as the particular frequencies to which I am exposed. I am very concerned that increased levels of radiowave and microwave radiation will make me sick again, even at home.

7. We have two small children whom we will be homeschooling so they will not be exposed to dangerous high frequency environment in our local public school (Waterloo, WI). The school has both WiFi and high electrical pollution levels.

8. Our children are both sensitive to high frequencies. They feel sick, become hyperactive, less able to think logically and control their behavior. They also sleep poorly in bad high frequency environments. We do not want to have them involuntarily exposed to a pollutant that has such profound detrimental effects on them.

9. I have maintained the website www.electricalpollution.com for the last seven years since shortly after I discovered that the high frequencies present on building wiring and flowing across the ground from non-linear time varying loads were making me, and other sick. Research on the health effects of electrical pollution is available on the website on the Research Page. More technical

EXHIBIT 12

information is available on the Technical Page. Electrical pollution is a very potent form of exposure to high frequencies. Exposure to all forms of high frequencies, including electrical pollution, must be included in standards regulating exposure of the general public to protect the public health during continuous exposure.

10. Because of the serious effects exposure to high frequencies has on our health, we do not own a cellphone, cordless phones, wireless router, baby monitors, or subscribe to wireless internet.

11. I have read widely on the research into the health effects of exposure to high frequencies. I believe that the increased exposure to high frequencies from radiowave and microwave transmitters and from electrical pollution are behind the public health crisis that has dramatically increased utilization of our medical system for chronic conditions. The recent article by Halberg and Johansson in *Pathophysiology*[1] supports this contention. The comprehensive review by Dr. Cherry, which documents health effects and explores mechanisms, besides thermal mechanisms, through which microwave and radiowave radiation can impact health, also supports my contention that exposure to microwave and radiowave radiation is a public health threat which is probably contributing to significant public illness. Papers by Dr. Milham[3], Dr. Havas[4,5,6] and Dr. Wertheimer[7] also show that exposure to electrical pollution constitutes a public health threat, as does a report by Char Sbraggia regarding health improvements experienced by teachers and students when the electrical pollution in their school was cleaned up (Exhibit A). These are just a few of the papers I have read. However, they provide a picture which should illustrate the need for precautionary action to halt the expansion of public exposure to high frequencies until safety standards can be established to prevent health problems in the general population during continuous exposures to high frequencies, taking into account all sources of exposure.

1. Ö. Hallberg, O. Johansson, Apparent decreases in Swedish public health indicators after1997—Are they due to improved diagnostics or to environmental factors? Pathophysiology(2009)
2. Cherry, N. 2000 Criticism of the Health Assessment in the ICNIRP Guidelines for Radiofrequency and Microwave Radiation (100 kHz- 300 GHz)
3. Milham S, Morgan L. 2008 A New Electromagnetic Exposure Metric: High Frequency Voltage Transients Associated With Increased Cancer Incidence in Teachers in a California School. American Journal of Industrial Medicine.
4. Havas M, Olstad A. 2008. Power quality affects teacher wellbeing and student behavior in three Minnesota Schools, Science of the Total Environment, July.
5. Havas M. 2006. Electromagnetic hypersensitivity: biological effects of dirty electricity with emphasis on diabetes and multiple sclerosis. Electromagnetic Biology Medicine 25(4):259-68.
6. Havas M. 2008. Dirty Electricity Elevates Blood Sugar Among Electrically Sensitive Diabetics and May Explain Brittle Diabetes. Electromagnetic Biology and Medicine, 27:135-146.
7. Wertheimer N, Savitz DA, Leeper E. 1995 Childhood Cancer in Relation to Indicators of Magnetic Fields from Ground Current Sources Bioelectromagnetics 16: 86-96.

12. I am very concerned that a continued increase in levels of transmitted radiowave and microwave radiation will be very detrimental to my health and that of my family and will further impair our ability to live a normal life.

13. Because of the number of cell service carriers and wireless internet providers operating in our area, we have many overlapping signals from them and the associated cellphones and wireless internet routers and we are concerned that there are insufficient safety standards to manage the exposure of our family to these signals.

14. As a result, we are concerned about the long-term and short-term health effects of continuous exposure to all these signals.

15. We do not want to be guinea pigs for the government-sanctioned rollout of new technologies with insufficient safety standards. We do not want to continue to be part of the experiment being involuntarily carried out on the American people verifying the results of decades old research showing that the long-term health effects of these wireless signals can be profound and dangerous.

16. Without conservative safety standards designed to protect the public health of our entire population during continuous exposures from all detrimental health effects and the rigorous enforcement of such standards, we fear the hazards to our family's health of this low level radiation over time.

17. We are concerned about having to live next to antennas and transmitters if wireless internet is built out in our local environment. We have a right to be safe in our homes and our schools and workplaces, and we have a right to current safety standards based on current science, not mistaken assumptions (the thermal model) and wishful thinking.

18. We understand that the EMR Policy Institute is preparing comment to submit in the current Federal Communications Commission proceeding to develop the policy for providing high-speed internet service throughout the country - FCC 09-31, A National Broadband Plan for Our Future.

19. The undersigned and all the persons in our household hereby designate The EMR Policy Institute to speak on our behalf on this FCC proceeding for the purpose of defending our rights to be safe in our own home, in our schools and our workplaces and neighborhoods from the invasion into our home, schools and workplaces of signals that may cause harm to us, because the FCC's current RF exposure guidelines are inadequate in light of the findings of current science.

20. I ask that the FCC accept this affidavit and the attached exhibit into evidence for consideration under FCC 09-31, A National Broadband Plan for Our Future, as it is material evidence of the existence of signals to which my family and I are subject, yet without proper standards based on current science.

Catherine Kleiber

Sworn to before me

This 5 day of June, 2009

Rebecca L Jones
Notary Public exp: 5-13-12
County of Jefferson
State of Wisconsin

Exhibit A

Melrose-Mindoro

N181 State Rd. 108 • Melrose, WI 54642

Ron Perry, Superintendent
Del Deberg, High School Principal
Tracy Dalton, K-8 Principal

High School – (608) 488-2201 or (608) 857-3417
Fax – (608) 488-2805
Melrose Elementary – (608) 488-2311
Mindoro Elementary – (608) 857-3410

CHANGES NOTED SINCE FILTERS INSTALLED

In the years previous to the filters being installed, several children required inhalation treatments for their asthma in the spring and in the fall. Many of them required nebulizer treatments once or twice a day while at school. I have not had to administer one nebulizer treatment this past year and of the 37 students with inhalers, only three of them use the inhaler for their exercise-induced asthma before Phy Ed.

Teachers are stating they are less fatigued and tired.
The sense of smell has come back for me. I lost it for three years and the doctors said it was my allergies.
The students seem to have more energy and appear and seem less tired.
Several staff who doctored regularly for allergies have not had to take medication or see their doctor because they are having less problems.
Students whom have been diagnosed with migraine headaches have had their headaches reduced no headaches at all.
I feel that our faculty and students have had improved health overall since the filters have been installed.

Char Sbraggia R.N.
District Nurse

AFFIDAVIT OF EVELYN SAVARIN

State of New Hampshire]
] ss.
County of Rockingham]

Evelyn Savarin being duly sworn deposes and says:

1. My name is Evelyn Savarin. I reside at 18 Marsh Lane, Hampton, NH 03843

2. I have been plagued with electrosensitivity for over 15 years. I discovered it attending Grad School in Princeton N.J when living very close to major transformers, antennas and using a computer.

3. The symptoms manifest themselves primarily through disturbed sleep rapid heart beat. I found when I left for the countryside my symptoms would dramatically improve.

4. Curious why this was happening to me in certain settings and not others, I began to investigate my surrounding environment and activities. Through intensive research I learned these symptoms were very much related to my exposures from varying types electromagnetic radiation signals.

5. The growth of radio/microwave radiation in our ambient environment has increasingly marginalized my life, both in the type of working environments I can handle and the places I can live that allow me to sleep and focus well. When I find a living situation that works well for me, the continued build out of antennas and personal wireless devices resurrects the severity of my symptoms. I then must find another place to live, or a way to shield my environment.

6. My living options have become so few and very expensive

7. To find places which are lower in ambient EMF-RF radiation, I have had to purchase many sophisticated electromagnetic meters, covering a host of frequencies.

8. I am now living in the basement of a mother in law single family home, far from other neighbors except for my own landlord. I chose this place because I saw that the readings were relatively low. I still had trouble sleeping. It did not take long to discover my landlord, who was sympathetic to my the issue, owned a DECT phone and baby monitors which were on all day and night. He was not aware these device emitted RF radiation until my meters showed him how high the readings were.

9. He proceeded to turn off the baby monitors completely and DECT phone at night. I began to sleep much more rapidly and soundly.

10. Interestingly, his younger child who had rarely, if ever, slept through the night since he was born, began sleeping through the night after all wireless devices were turned off.

EXHIBIT 13

11. It is criminal to allow these personal home wireless devices be sold without any labeling or warning they are emit of radio/microwave radiation, and that possible side effects can occur by this type of radiation.

12. European governments and other governments around the world are becoming more aware of the mounting evidence of health effects from this technology. They are not reassured by naysayers who adamantly deny any element of harm exists from the wireless world we are exposing ourselves and our children.

13. Many European countries are taking many precautionary and proactive measures to reduce exposures to their populations, namely restricting the marketing and sales of cell phones to children, eliminating WIFI in schools and some public institutions, restricting the installation of antennas away from schools and hospitals, and many are in the process or have set much lower standards from any antenna emission. Some communities in Europe have even been given permission to take down antenna sites which they found were too powerful or too close to residential environments.

14. The European parliament is asking for greater disclosure in the sale of wireless devices, so that people will know how much radiation is being emitted from them.

15. It seems inconceivable that this country and its health institution can so readily dismiss any connection between the growing manmade electromagnetic radiation envelope and its health effects.

16. Our medical institutions seem to have no problem harnessing the power of radio/microwave energy to perform all kinds of medical miracles and biological interventions. Yet when it comes to making the connection that those same radio/microwave emission indiscriminately disbursed into the environment can generate a biological response, any admission of health effects is denied.

17. With the endless rollout of wireless applications from antenna installations to personal wireless devices, such as Wifi, WiMax, DECT phones, baby monitors, Broadband over powerlines etc., those of us who cannot tolerate or do not wish to live with this type of environmental assault are left with no voice or options.

18. I ask the Commission to consider the democratic rights for those of us who do not wish to be drawn into this wireless pollution revolution. Allows us the opportunity of choice, which we increasingly have less of everyday. Implement a Broadband plan that will allocate wireless free living zones across the country.

19. I ask the Commission to favor, in all possible circumstances, fiber optics, cable or other wired technology that does not emit an envelope of electromagnetic high frequency radiation in the ambient environment.

20. I understand that the EMR Policy Institute is preparing comment to submit in the current Federal Communications Commission proceeding to develop the policy for providing high-speed internet service throughout the country - FCC 09-31, A National Broadband Plan for Our Future.

21. I the undersigned hereby designate The EMR Policy Institute to speak on my behalf on this FCC proceeding for the purpose of defending our rights to be safe in our own home, in our schools and our workplaces and neighborhoods from the invasion into our home, schools and workplaces of signals that may cause harm to us, because the FCC's current RF exposure guidelines are inadequate in light of the findings of current science.

22. I ask that the FCC to accept this affidavit and the attached exhibits A+B (E.S.) into evidence for consideration under FCC 09-31, A National Broadband Plan for Our Future, as it is material evidence of the existence of signals to which my family and I are subject, yet without proper standards based on current science.

Evelyn Savarin

Sworn to before me

Evelyn Savarin

This 2nd day of June, 2009

LISA STONESIFER, Notary Public
My Commission Expires June 27, 2012

Exhibit A

Countries with 100 to 1000 times lower Exposure Standards for RF/Microwave emissions compared to the United States:

Switzerland, Italy, Russia, China and Salzburg, Austria
http://www.microwavenews.com/news/backissues/i-f00issue.pdf
http://www.microwavenews.com/news/backissues/s-o02issue.pdf

A sampling of Countries and Public Institutions that have issued warnings or restrictions on Wireless Products especially as it pertains to children:

On 4/20/09 the European Parliament issues a comprehensive resolution to manage the health safety concerns of Wireless products.
http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+COMPARL+PE-416.575+01+DOC+PDF+V0//EN&language=EN

Press Release:
http://www.europarl.europa.eu/news/expert/infopress_page/066-53234-091-04-14-911-20090401IPR53233-01-04-2009-2009-false/default_en.htm

Belguim municipality mayor limits Cell Antenna Installations
http://www.elektrose.net/spip/spip.php?article66

Belguim Consumer Protection Minister issues a statement to restrict mobile phone marketing to children
http://www.elektrose.net/spip/spip.php?article62

Finnish position on Limiting phone use for Children
http://www.stuk.fi/stuk/tiedotteet/en_GB/news_527/

France issues policy to limit Cell phone use by children.
http://www.powerwatch.org.uk/news/20090115_france_ban_mobile_phones.asp

France's Public Library in Paris replaces WiFi with wired Internet because of scientific evidence and health complaints linked to Microwave radiation exposure
http://www.next-up.org/pdf/FranceNationalLibraryGivesUpWiFi07042008.pdf

French school in Normandy France removes WiFi
http://74.125.93.132/translate_c?hl=fr&ie=UTF-8&langpair=fr%7Cen&u=http://www.next-up.org/pdf/The_mayor_Herouville_Saint_Clair_Calvados_France_remove_wifi_schools_28_04_2009.pdf&rurl=translate.google.com&usg=ALkJrhgPsbcTt39md507xbobWQ9JBfjSPg

Exhibit A

France bans Cell phones in primary schools and City of Orange removes Antennas on roof of Civic Building
http://electromagnetichealth.org/electromagnetic-health-blog/france-bans-cell-phones-in-primary-schools/

German Federal Office of Radiation Protection address limiting Children to Mobile phones (original site -in German except for title)
http://www.bfs.de/en/elektro/papiere/bfs_handy_kind.html

Also:
September 17, 2007; The Independent
"The German government is advising its citizens to avoid using Wi-Fi and cell phones as much as possible, suggesting they use cable connections for computers and landlines instead. Their advice goes even further, and warns people of the dangers of electro-smog from other household electrical products. The German Environment Ministry is recommending that people minimize their exposure to Wi-Fi radiation and is*"actively informing people about possibilities for reducing personal exposure"*.
"The German equivalent of the UK Health Protection Agency, the Federal Office for Radiation Protection, is calling for caution in the use of electrical equipment. A representative of the office, FlorianEmrichsaid Wi-Fi should be avoided *"because people receive exposures from many sources and because it is a new technology and all the research into its health effects has not yet been carried out"*

German Lower House of Parliament issued warnings on WiMax and favors Wireline technology where possible (see underline content)
http://www.emrpolicy.org/news/headlines/deutscher_bundestag.pdf

Toronto Public Health department – mobile phones children limit
HYPERLINK "http://www.thestar.com/article/459099"

Exhibit B

1. My name is Alex Gherzi

1a. I live at 18 Marsh Lane, Hampton Falls, NH 03844

2. My tenant neighbor is Evelyn Savarin

3. I have lived at this address for over 2 years.

4. I have had a baby monitor in my youngest child's room since he was born, 2 ½ years ago -prior to purchasing my present house. The listening monitor is below his room.

5. I also have had a DECT phone on at all times.

6. When my new tenant, Evelyn Savarin, moved into the mother in law below our living quarters, she informed us that she had a sensitivity to wireless electromagnetic fields. I was sympathetic to her concerns since we had fought a cell tower from being located on the property next to ours.

7. I did not believe we owned any wireless devices. My only knowledge of wireless was WIFI.

8. Evelyn did some measurements and found the apartment would be suitable for her.

9. She soon found it hard to sleep. Doing some additional measurements she realized that there was still quite a bit wireless activity emanating from my part of the house.

10. She conducted some measurements with her meter inside my section of the house, and found the baby monitor and DECT phone was putting out a lot of electromagnetic RF energy.

11. I was not aware that these devices emitted so much electromagnetic radiation.

12. I proceeded to turn off the Baby Monitor completely and the DECT phone at night to assist Evelyn in her sleep needs. It apparently helped her a lot.

13. But more Important, I found for one of the first times my youngest son was sleeping through the night when all the Wireless devices in our house were turned off. This was 2 months ago and it still continues until today.

14. My children are healthy and normal, however the belief that I may have been compromise their well being and sleep with these devices concerns me greatly.

15. I believe government must do a better job of monitoring and informing the public on the emissions of these home wireless devices, so families can better decide whether the limited safety and convenience is worth the price of children's health and comfort.

Sworn to before me
LAWRENCE GINSBERG
Justice of the Peace - New Hampshire
My Commission Expires July 28, 2009

Alex Gherzi

This 2 day of June, 2009

Exhibit B

1. My name is Alex Gherzi

1a. I live at 18 Marsh Lane, Hampton Falls, NH 03844

2. My tenant neighbor is Evelyn Savarin

3. I have lived at this address for over 2 years.

4. I have had a baby monitor in my youngest child's room since he was born, 2 ½ years ago -prior to purchasing my present house. The listening monitor is below his room.

5. I also have had a DECT phone on at all times.

6. When my new tenant, Evelyn Savarin, moved into the mother in law below our living quarters, she informed us that she had a sensitivity to wireless electromagnetic fields. I was sympathetic to her concerns since we had fought a cell tower from being located on the property next to ours.

7. I did not believe we owned any wireless devices. My only knowledge of wireless was WIFI.

8. Evelyn did some measurements and found the apartment would be suitable for her.

9. She soon found it hard to sleep. Doing some additional measurements she realized that there was still quite a bit wireless activity emanating from my part of the house.

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15. I believe government must do a better job of monitoring and informing the public on the emissions of these home wireless devices, so families can better decide whether the limited safety and convenience is worth the price of children's health and comfort.

Sworn to LAWRENCE GINSBERG Justice of the Peace - New Hampshire My Commission Expires July 28, 2009

Alex Gherzi

EXHIBIT 13 B

This 2 day of June, 2009

AFFIDAVIT OF RONALD O. HURSTON, M.D.

State of Massachusetts]
] ss
County of Middlesex]

RONALD O. HURSTON, M.D. being duly sworn deposes and says:

1. My name is Ronald O. Hurston, M.D. I live at 29 Shaw Drive, Wayland, Massachusetts.

2. I have lived in Wayland, Massachusetts for 23 years. My home is approximately 3/4ths of a mile from a wireless telecommunications tower which has been in place and operating for about 3 years. I currently live alone in my home. My son, having grown up at this location, is currently away at school most of the time. However, the principles described herein pertain to his situation elsewhere as well.

EXHIBIT 14

3. The operation of this cell tower has been a source of considerable concern to me because, both as a thoughtful adult and as a physician, I have been aware of the body of small studies that have been carried out primarily in Europe on the safety of such microwave transmitters. Unfortunately, as I understand it, for political reasons large scale studies have not been carried out in the United States to address the public health consequences of primarily the nonthermal effects of chronic exposure to low level microwave radiation.

4. The problem is that numerous small studies done in many different locations suggest and even report an association between chronic exposure to such radiation and significant adverse consequences to human health.

5. I feel very strongly that given the suggestiveness of the available research that, without the appropriate large scale studies, it was and remains an imprudent decision to expose the general population including children and seniors to such a risk. It invites potentially tragic public health consequences in the future.

6. I find the decisions to place these towers in close proximity to areas where people spend long periods of time (such as residential, neighborhood, and industrial areas) to be an outrage. The short range financial goals of large corporations have once again taken priority over the well being of the general public, and it will be the general public who will have to bear the personal consequences and foot the financial expenses years later of such irresponsible corporate and public planning.

7. There are schools nearby, and the conservation land that I, among others, contributed money to purchase so that the town rural character could be maintained and its natural beauty enjoyed by all, as far as I am concerned, has been ruined both aesthetically and from a health safety point of view as a result of the placement of the tower in my neighborhood and right next to the conservation land.

8. Because of my concern about the health effects of cell phone technology, I use my cell phone sparingly for essential situations and emergencies. Other than that, I try to avoid its use. The scientific studies that I am referring to were made available to me by the EMR Policy Institute who, I am sure, will make them available to you.

9. It is apparent that the intensity of these wireless transmissions will increase over time as more telecommunications companies locate equipment on the tower. The additional presence of wireless transmission for internet purposes will further increase the population's exposure. Again, let me say that I am not categorically opposed to the presence of obviously necessary transmission facilities near heavily populated areas. I am opposed to their presence when the responsible large scale public health safety studies have not been carried out so that reasonable safety standards can be established.

10. Without scientifically validated, updated, thoughtful, and responsible FCC standards for the location of sources of microwave radiation in the community and the enforcement of such standards, I have significant concerns about the risk to my health and the health of my family and the health of others over time.

11. I understand that the EMR Policy Institue is preparing comment to submit in the current FCC proceeding to develop the policy for providing high-speed internet service throughout the country- FCC 09-31, A National Broadband Plan for Our Future.

12. I hereby designate The EMR Policy Institue to speak on my behalf on this FCC proceeding for the purpose of defending my rights to be safe from significant adverse nonthermal health effects from microradiation telecommunication and high speed wireless internet signals in my own home and for my family members to be safe in our neighborhoods, in their schools and workplaces.

13. I ask that the FCC accept this affidavit as evidence for consideration under FCC 09-31, A National Broadband Plan for Our Future, as it is material evidence of the existence of signals to which I and my family are subjected without proper standards based on current scientific principles.

Ronald O. Hurston, M.D

Ronald O. Hurston

Sworn before me

This 6th day of June, 2009

Notary Public

Sutha Karikal
Notary Public
My Commission Expires
April 9, 2010

AFFIDAVIT OF MARGARET PATTON

State of Massachusetts]
] ss.
County of Middlesex]

MARGARET PATTON, being duly sworn, deposes and says:

1. My name is Margaret Patton. I live at 43 Plain Road, Wayland, Massachusetts.

2. I have lived in Wayland, Massachusetts for 37 years. I live 1.4 miles from 193 Old Connecticut Path East, the home of a 180 ft. cell tower with the antennas of four carriers (AT&T, Sprint, T-Mobile, and Verizon) operational about three years. I live about 0.4 mile from Nextel antennas on top an electric utility pole on the railroad line behind 300 Boston Post Road that has been operational about five years.

3. Henry Lai's 1995 research was compelling in which he reported DNA stand breaks from microwave RFR at low intensity levels (the published results were in the International Journal of Radiation Biology (1996;69-4:513-521) and Bioelectromagnetics (1995; 16:-207-210).

4. The Salford et al. 1997 study of the change in the blood-brain-barrier at a specific absorption rate (SAR) of 0.0004 W/kg is more evidence showing harm. [Presented at the Second World Congress on Biology and Medicine of Electricity and Magnetism in Bologona, Italy, 1997].

5. *The Bioinitiative Report* (www.bioinitiative.org/), about the dangers of digital microwave technology to humans, notes that microwave cellular antennas and towers should not be in residentially zoned neighborhoods.

6. For the last ten years, wireless companies (AT&T, Nextel, Sprint, T-Mobil, Omnipoint, Cellular One, and MetroPCS) come into Wayland and demand sitings where they want, by intimidating local authorities with lawsuits and harassing the citizens who tried to protect their families and homes from the intrusion of cellular antennas and towers in residentially zoned areas.

7. Wayland1998 Special Town Meeting overwhelmingly passed a six-month to one year wireless moratorium. It was denied by the Massachusetts Attorney General (AG). We citizens and the Town of Wayland both filed suit against the AG. (See Wayland v. Attorney General, Middlesex Superior Court, No.MICV 1998-05297).

8. In 1998, Nextel Communications, Inc. and Cellular One Communications, Inc. applied and were granted by the Wayland Planning Board an Approval Not Required endorsement. They wanted to put antennas on Boston Edison Company (BECO) Tower #112 in Wayland Center. (See Margaret T. Patton, et al. v. Planning Board of The Town of Wayland, AT&T Wireless PCS, Inc., Omnipoint Communications Inc., Omnipoint Communications MB Operations,LLC, Massachusetts Bay Transportation Authority, and Boston Edison Company.)

EXHIBIT 15

9. In the above mentioned case, AT&T asked Massachusetts Superior Court for monetary sanctions against me and others. While Judge Hiller Zobel would not allow the monetary sanctions, he announced that he had stock in a cellular company. We lost the suit on a standing issue, not on the merits of the case.

10. December 1998 Special Town Meeting voted in Moratorium #2, later approved by the AG. As the first Moratorium was ruled invalid, it left the town wide open for the wireless companies to apply for permits.

11. Wayland 1999 Town Meeting overwhelmingly passed a bylaw establishing a wireless overlay district for cellular antennas and 900 ft. setbacks from the property lines of schools, nursing homes, and dwellings. To this date, no antennas are in that district. The companies knew they could always go there, but pushed their way into the residential neighborhoods instead.

12. In 2002, the Massachusetts Appeals Court determined that the plaintiffs whose property abutted the BECO Tower #112 did not have standing in the case against the Planning Board (see Item #8 above). The abutters prevailed on the grounds in a different forum. Had the Town and citizens prevailed, BECO Tower #111 would not have Nextel cellular antennas on it today. Plaintiff Michelle M. Purrington and her three children live approximately .02 mile from these cellular antennas.

13. Today a 180 ft. tower with four carriers' antennas sits in a residential neighborhood surrounded by houses at the top of Reeves Hill at 139 Old Connecticut Path East Road. The companies are always allowed to construct their towers and antennas before the court makes a decision. It took three and a half years for the Massachusetts Land Court to make a decision on Reeves Hill. We are appealing that decision. So each time, it takes the courts years to decide the cases while the wireless companies build their towers, antennas and put them on-line radiating the neighborhoods and make profits. Since the installation of the Reeves Hill antennas, I have had many sleepless nights. As a survivor of cancer twice, I am very concerned about the close proximity of the cell antennas as well as the number of antennas allowed on this one cell tower. The carriers are unable to demonstrate that the radio frequencies they produce is safe for human health and hide behind woefully inadequate and obsolete FCC "safety" standards as their warrant for inflicting uninvited harm in residential areas. Right now a fifth carrier (Metro PCS) is building antennas on the tower regardless of a lawsuit in Concord District Court by neighbors and concerned citizens.

14. In one case in the U.S. Court of Appeals for the First Circuit, our lawyer was informed that it was difficult to find a judge who did not have a conflict as many of them have stock in the wireless companies. Massachusetts Superior Court Judge Zobel was not the only judge who informed the litigants that he had stock in wireless companies. US District Court Judge Mark L. Wolf continued to preside in the 2005 case of Cingular Wireless PCS against the Town of Wayland (See Exhibits 1 and 2). Neither party nor the judge included the abutters to 137 Boston Post Road to be involved in the case (See Exhibit 3). In June 2005, citizens who lived next door to a proposed 120 ft. cellular tower at 137 Boston Post Road petitioned the United States District Court for the District of Massachusetts (CIVIL ACTION NO.2004-cv-11807-MLW) but were not allowed to be joined in Cingular and Eastern Towers' action against the Town of Wayland.

Once again, the courts give the wireless companies what they wanted and ignored the rights of the citizens.

15. While AT&T and Omnipoint were allowed by the court to join in the ANR suit (see #8), abutters to BECO Tower #111 were not joined in the suit by either party or the judge, and were not even allowed to intervene in February 2002 in the Nextel case against the Zoning Board of Appeals (CIVIL ACTION NO. 02-10260-REK.)

16. The Wayland Board of Health has continually recommended disapproval of all wireless antennas and towers in residentially zoned areas. (See Exhibits 4, 5, and 6.)

17. Not only do the courts ignore the citizens, the town sees money on publicly owned lands in rentals fees to wireless companies. The town also does not want expensive legal bills, so does nothing to stop the wireless invasion. Instead, the citizens of the town file suits against the wireless companies to protect their residentially zoned properties from the siting of cellular antennas and towers. Often town officials become hostile to the efforts of the citizens. (See Exhibit 7). Mr. Robinson never received a postcard letting him know about the building permit.

18. The insufficient FCC safety standards expose all of us to amounts of radiation that many studies show are harmful to human health. Massachusetts Radiation Control no longer keeps records of locations of microwave antennas. The amount of radiation coming from antennas is information not available to the public.

19. As the wireless build-out increases daily, none of us are safe in our own homes. We effectively have no rights as home owners to protect ourselves from invasive pulse-digital microwave radiation from close-by microwave antennas. The federal court judges know very little about state zoning matters and their rulings usually are on the side of the wireless companies as abutters are said not to have standing or are not allowed to be joined or to intervene in cases brought by carriers against the town or its boards. We have no rights and the companies get whatever they want. Do they own the FCC too?

20. In 1999, I was in the court room in New York City and heard at least two of the three United States Court of Appeals for the Second Circuit judges ask the FCC lawyers if they had looked at any biological research before the FCC released the wireless licenses. The answer was "No Sir" each time.

21. I ask that the FCC accept this affidavit into evidence for consideration under FCC 09-31, A National Broadband Plan for Our Future, as it is material evidence of the existence of signals to which my family and I are subject, yet without proper safety standards based on current international science.

22. I request that EMR Policy Institute represent my interests before the FCC and other bodies considering these issues.

Margaret Patton

Sworn to before me

Exhibit 1

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

NEW CINGULAR WIRELESS PCS, PPC, ET AL., Plaintiff,	)	
v.	)	C.A. No. 04-11807-MLW
TOWN OF WAYLAND, ET AL., Defendant.	)	

ORDER

WOLF, D.J. February 28, 2005

In response to the January 27, 2005 Order, both parties have made submissions stating that they do not believe that my recusal is required by 28 U.S.C. §455(a) or §455(b) and, in any event they waive, pursuant to 18 U.S.C. §455(e), any §455(a) ground for disqualification. I agree with the parties' assessment and accept their waivers. Therefore, I will continue to preside in this case.

/S/ MARK L. WOLF
UNITED STATES DISTRICT COURT

Exhibit 2

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

FILED
IN CLERKS OFFICE
2005 FEB 11 P 1:44
U.S. DISTRICT COURT
DISTRICT OF MASS.

C.A. NO. 04-11804-MEL

AT&T WIRELESS SERVICES OF MASSACHUSETTS, INC., d/b/a AT&T WIRELESS, and EASTERN TOWERS, LLC,

Plaintiffs

v.

TOWN OF WAYLAND, MASSACHUSETTS, BOARD OF APPEALS OF THE TOWN OF WAYLAND and JAMES E. GRUMBACH, ERIC B. GOLDBERG, STEVEN FUGARAZZO, LAWRENCE K. GLICK, SUSAN KOFFMAN, SHAUNT SORIAN, ADIA GENNIS, LINDA SEGAL, as they are members and alternate members of the Board,

Defendants

DEFENDANTS' REPORT REGARDING RECUSAL

Defendants, in accordance with the Order of the Court dated January 27, 2005, hereby report that they do not believe that recusal is required under 28 U.S.C. §455(a) or §455(b). In any event, under 28 U.S.C. §455(e), to the extent that there may be ground for disqualification under §455(a), based upon the Court's disclosure, the Defendants waive any ground for disqualification.

DEFENDANTS,

CERTIFICATE OF SERVICE
I hereby certify that a true copy of the above document was served upon the attorney of record for each other party by mail-hand on February 10, 2005

Joel B. Bard (BBO #029140)
Patricia A. Cantor (BBO# 072380)
Kopelman and Paige, P.C.
31 St. James Avenue
Boston, MA 02116
(617) 556-0007

242685/WAYL/0083

Exhibit 3

Mr. James E Grumbach,
Chairman
Wayland Zoning Board of Appeals
41 Cochituate Road
Wayland, Ma.
01778

September 30, 2003

Dear Mr. Grumbach,

We understand that on October 21 you will be holding hearings concerning cellular tower applications at 135 and 137 Boston Post Road. As an abutter to both these properties this issue is of particular interest to us.

We strongly object to the granting of these variances for the following reasons.

1) Every town has a host of zoning bylaws that cover everything from lot size to land use to placing a number on the exterior of the building. Wayland is no different. I believe that both the properties in question are in a residential district. One is already operating a business under a variance.

Placing industrial equipment in a residential district is so far outside the letter and intent of the Wayland zoning bylaws that we cannot imagine why these applications are even given a hearing. Wayland has a district for just such equipment and that is where it belongs.

2) Most activities that a neighbor undertakes has little or no effect on the property value of his neighbors. In this case however, there is no doubt that placing one or both of these towers in these locations will devastate our property value as well as others in this immediate area.

3) Finally and most importantly, we have three young children . As one who was born and raised in Wayland it has been our intent since we moved here in 1995 to raise our children in Wayland as well.

We have grave concerns regarding the health risks to our children as well as ourselves that these machines pose. We understand that the cellular industry can present countless studies showing no risk at all from these installations. I would argue that the long term health risks are not known for the simple reason that these devices have not been in use for such a long time. I would remind you that history is littered by industry sponsored studies that have proven to be less than accurate over time.

We are not asking any special treatment by your committee. All we ask is that you protect the citizens of this town from outside industries by enforcing the existing zoning bylaws as they are written.

Thank you for your time and consideration.

Kimberly H. Woods
9 Pinebrook Road
Wayland, Ma.
01778

Stewart J. Smith

Exhibit 4

PETITION

1. **At the 1998 Annual Town Meeting, the Board of Health (BOH) Chairman Andrew Wheelock reported that the BOH voted unanimously to recommend disapproval of the Board of Selectmen's (BOS) Article #33, to site cellular towers on Reeves Hill.**
2. **Wheelock also reported that the BOH recommended disapproval of the BOS Article #52, to site wireless antennas in church steeples and in town building copulas.**
3. **On January 5, 1999, the BOH sent a memo to the Planning Board noting that at its December 15, 1998 meeting, the BOH voted unanimously (4-0) to recommend disapproval of Omnipoint and AT&T's application to site antennas on Boston Edison Company (BECO)Tower #112. "The magnitude of the health hazards from wireless communication facilities has not been determined, and potential health hazards may exist. The authority for our position is granted to the BOH under Mass. General Laws, Chapter 111, Sections 31, 122, 143 and other sections."**
4. **On February 2, 1999 and on February 15, 1999, the BOH held two public hearings on the health effects of wireless facilities.**
5. **On January 14, 2002, the BOH sent a memo to the Zoning Board of Appeals (ZBA) recommending denial of an application to site antennas on BECO Tower #111, noting: "This plan indicates that approximately 36 properties and 27 buildings on those properties would be included in this 900 ft. radius. . ." "Cell Towers are considered to pose a possible health risk from radio waves to people who either live or work on properties located in the 900-ft. radius around the proposed cellular tower." Based on the information and research provided (at the 1999 public hearings) the BOH recommended denial of the Tower #111 location.**
6. **On October 30, 2003, the Board of Health sent a memo to the ZBA stating that the BOH opposed the application (of AT&T Wireless, Sprint and Eastern Towers to site a 120 ft. tower with antennas at 137 Boston Post Road) because the tower would be too close to residences (see ZBA Decision 03-35, Page 11 of 17).**

We, the undersigned medical professionals, petition the Wayland Board of Health to continue to protect the public health by recommending against Nov. 1 Special Town Meeting Articles #2 and #3, to site a 180 ft. tower on Reeves Hill. The tower, with pulse-modulated microwave antennas on 24 hours a day, 7 days a week, would be too close to nearby homes, thus possibly endangering the public health and safety of the residents.

Name	**Address**
[illegible signature], MD	29 Shaw Drive Wayland, M[illegible]
K. C. Potts, MD	11 Shaw Dr, Wayland, MA
[illegible] Sosloun, MD	8 Fox Meadow Lan[e]
[illegible signature] MD	32 Shaw Dr Wayland, MA
[illegible] Schaffer, Ph.D.	32 Shaw Dr Wayland, MA

Exhibit 5

BOARD OF HEALTH
41 COCHITUATE ROAD
WAYLAND, MA 01778
(508) 358-3617
FAX: (508) 358-3606

TOWN OF WAYLAND
BOARD OF HEALTH

LANDFILL & RECYCLING CENTER
484 BOSTON POST ROAD
WAYLAND, MA 01778
(508) 358-7910
FAX: (508) 358-7910

MEMORANDUM

TO: Planning Board

FROM: Board of Health B.C.

DATE: January 5, 1999

SUBJECT: REPORT ON THE OMNIPOINT/AT&T/BECO (MBTA Right-of-Way Pole #112) SITE PLAN APPLICATION

The Board of Health at our regularly scheduled meeting on December 15, 1998 voted unanimously (4-0) to recommend disapproval of the Omnipoint/AT&T/BECO (MBTA Right-of Way Pole#112) for Site Plan Review and Approval by the Planning Board. The magnitude of the health hazards from wireless communication facilities has not been determined and potential health hazards may exist. The authority for our position is granted to the Board of Health under Massachusetts General Laws Chapter 111, Sections 31, 122, 143 and other sections.

pole#112comment

RECEIVED
PLANNING BOARD DATE 1/5/99

Exhibit 6

BOARD OF HEALTH
41 COCHITUATE ROAD
WAYLAND, MA 01778
(508) 358-3617
FAX: (508) 358-3606

TOWN OF WAYLAND

BOARD OF HEALTH

LANDFILL & RECYCLING CENTER
484 BOSTON POST ROAD
WAYLAND, MA 01778
(508) 358-7910
FAX: (508) 358-7910

February 24, 1999

TO: Wayland Planning Board

FROM: Wayland Board of Health S.C.

SUBJECT: Article for Special Town Meeting - Article 15 Wireless Communications Services District

At its regularly scheduled meeting on February 23, 1999, the Board of Health discussed the two panel presentations that were sponsored by both Boards, especially the information presented by the speakers at the second forum that emphasized possible adverse effects on biological organisms from non-ionizing radiation. Dr. Henry Lai focused upon three areas that were of concern:

1. The possibility of small hot (thermal) spots being formed that could cause cell damage,
2. The poor performance of rats response to a food location test after being subjected to non-ionizing radiation, and
3. Studies that have been replicated that document DNA damage.

The Board also was concerned about the strength of the radiation and based upon the presentations, it appears that the amount of radiation drops the further you get from the source.

Therefore, based upon their review of the Article, the Board voted to urge the Planning Board to adopt a minimum distance for cellular towers of 900 feet as the distance to residences and/or businesses. Also, they urge you to adopt a position that would prohibit the use of roof-mounted antennas and parabolic dish antennas in order to minimize exposure to the public.

cell towers(wireless communication by-law)2-24-99

RECEIVED
PLANNING BOARD DATE 2/25/99

Exhibit 7

July 10, 2003

Mr. Daniel Bennett
Wayland Building Commissioner
Wayland Town Building
41 Cochituate Road
Wayland, Massachusetts 01778

Dear Mr. Bennett:

Please mail the enclosed postcard if and when Nextel files an application for a building permit for BECO Tower #111. The postcard is addressed to me at 9 Wheelock Road, Wayland, Massachusetts 01778. Thank you very much.

Sincerely,

Stanley Robinson

AFFIDAVIT OF JUDITH H. IDE

Commonwealth of Massachusetts)
) ss.
Middlesex County)

Judith H. Ide being duly sworn deposes and says:

1. My name is Judith H. Ide. I live at 135 Old Connecticut Path, Wayland, Middlesex County, Massachusetts.

2. I have lived at the above address since 1958, when I was a youngster, before any cell tower was erected.

3. I live 300 feet from a cell tower presently that was erected in 2006 and is operated by Verizon, AT&T, T-Mobile and Sprint.

4. I have read studies that inform us that this technology is dangerous.

5. Because of the number of cell service carriers operating in this area, many signals overlap and I am concerned that there are insufficient safety regulations to manage the exposure to radiofrequency radiation emanating from these signals.

6. As a result, I am concerned about health effects of long-term continuous exposure to one or many signals.

7. Without strong Federal Communications Commission ("FCC") standards and the enforcement of such standards, I am afraid of hazards to my health of low level radiation.

8. I am concerned about having to live next to antennas and transmitters if wireless internet is built in our local environment. I have a right to be safe in my home and I have a right to strong safety standards based on current science.

9. I have been informed that the EMR Policy Institute is preparing comment to submit in the current FCC proceeding to develop the policy for providing high-speed internet service throughout the country - FCC 09-31, A National Broadband Plan for Our Future.

10. I, the undersigned, hereby designate The EMR Policy Institute to speak on my behalf on this FCC proceeding for the purpose of defending my rights to be safe in my home, from the invasion of signals that may cause harm to me, because the FCC's current RF exposure guidelines are inadequate in light of the findings of current science.

EXHIBIT 16

11. I ask that the FCC accept this affidavit into evidence for consideration under FCC 09-31, A National Broadband Plan for Our Future, as it is material evidence of the existence of signals to which I am subject, yet without proper standards based on current science.

Judith H. Ide

Commonwealth of Massachusetts)
) ss
County of Middlesex)

On this 5th day of June, 2009, before me, the undersigned notary public, personally appeared Judith H. Ide, proved to me through satisfactory evidence of identification, which was MA Dr. Lic to be the person whose name is signed on the attached document, and acknowledged to me that she signed it voluntarily for its stated purpose.

Notary Public
My Commission Expires: 1-19-2012